Spatial cultures of public libraries

Architecture, collective use and political agendas
in Medellín's Library-Parks

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Declaration

I, Cauê Costa Capillé, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

Abstract

Political and cultural agendas determine the programmes of public libraries, implying complex and often conflicting requirements in terms of their functioning. On one hand, they need to provide open and equal access to knowledge. On the other, they have functional needs that might restrict or condition the distribution and access of books, equipment and people. At the same time, social and technological changes cause this building type to change so as to include the idea of socialisation as a form of learning. This thesis investigates how space, programme and use interrelate in public libraries in order to express an intended public message and fulfil a specific social and cultural effect.

Medellín's Library-Parks are the main case studies analysed, as they function as key elements of a project that addresses social inequalities. Through spatial analysis using space syntax methods, the thesis provides a thorough description of these libraries' spatial configuration and their spatial organisation of programme. In addition, it shows how the libraries are used through a detailed mapping of users' co-presence, which exposes patterns that are further associated with the spatial and programmatic arrangements. Based on these three analyses, the thesis formulates types of spatial cultures in public libraries and exposes the role of space in influencing the emergence and/or constraint of particular patterns of social awareness that the traditional notion of the programme cannot capture.

It is found that depending on how public libraries control public use (spatially and programmatically), they can support the emergence of informal activities or work as educational institutions only. In addition, depending on how public libraries' educational role is manifested in space as spatial practices, they can serve as places that facilitate the exercise of institutional-bureaucratic power to normalise visitors' behaviours, or places that stimulate public participation and negotiation. The findings emphasise how public libraries work as accessible civic environments, promoting visitors' political and social awareness and potentially strengthening the collective engagement of the surrounding communities.

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Chapter 1
Introduction and Research Questions

Political and cultural agendas determine the programmes of public libraries, implying complex and often conflicting requirements in terms of their functioning. On the one hand, they need to provide open and equal access to knowledge. On the other hand, they have functional needs for safety and control of books, equipment and people that might restrict or condition the distribution of occupation, movement and various activities. At the same time, social and technological changes cause these typologies to change from within so as to include the idea of socialisation as a form of learning. This thesis investigates how architecture, programme and use interrelate in public libraries in order to express an intended public message and realise a specific social and cultural effect. In order to answer this question, this work looks at Medellín as a main case study, where public libraries are being constructed as key elements of a project that addresses social inequalities. Medellín, the second largest city of Colombia, is undergoing important social and urban changes since the beginning of the 1990s. Major transport and educational infrastructures are being built, affecting especially the areas of the city with the most underprivileged populations. These areas were stigmatised as places of violent drug trafficking, an image that is constantly replaced by that of a planning practice that focuses in 'upgrading' the spatial condition of informal settlements, as well as integrating these settlements with the 'formal' city. One of the most important effects that is expected from these 'urban upgrading' developments is the *strengthening of local communities* (Alcadia de Medellín 2004; Dávila 2013a; Montoya 2014), which is an objective that is often associated with the '*Library-Parks Project*' (Empresa de Desarollo Urbano 2014; Brand & Dávila 2011; 2013; Peña Gallego 2011).

The 'Library-Parks' are public facilities that were built to foster educational, cultural and social practices of their surrounding neighbourhoods (Peña Gallego 2011; Rodríguez et al. 2013), as well as act as local centres of 'community encounter'

Figure 1.01: España Library-Park in Santo Domingo Savio neighbourhood. Source: Alcadía de Medellín.

(Figure 1.01). In fact, the organisers of the 'Library-Parks Project' claim that 'co-inhabitation' is the *raison d'ètre* of these buildings (Fajardo Valderrama 2007; Montoya 2014). Considering that the Library-Parks are situated in neighbourhoods that are historically and culturally developed through incremental growth and self-management (Arciniegas 2014b), a first question that arises is how these two conditions are manifested in the Library-Parks, particularly in relation to the organisation of their spaces. The idea of knowledge is embedded in libraries (Forgan 1986; Markus 1993; Koch 2004) through the organisation of architectural space and access to informational content. Similarly, collective values are part of the structuring of spatial and social relations in public library buildings. In the case of the Library-Parks, how does the programme of the libraries respond to the requirements for offering public space? What are the spatial dimensions of these two roles (library use and public use)? Finally, how does the use of these buildings relate to Medellín's political agendas of urban and social change?

Space is a key element in these questions. In order to understand the relationship between space/programme and space/use in these libraries, this thesis

looks at the layout of space, that is, at how it is partitioned into rooms and how these rooms are interconnected through links of accessibility (doors and passages) or visual links (through doors, passages, windows, or over voids). Through this configuration of rooms-linkages, the spatial layout not only embeds programmatic functions (as it separates and links different roles and activities) but it also influences potential patterns of co-inhabitation and movement of people. The present study seeks to first describe the libraries considering their commonalities and differences in regards to context, architecture and spatial structure (chapter 5). Then, it addresses how the studied buildings organise the programmes in the spatial layout (chapter 6), and then how these distributions affect the use of space (chapter 7). It aims then to discuss how this threefold relationship – space, programme and use – relates to the cultural and political agendas of Medellín's upgrading project (chapter 8). Rather than seeking to develop guidelines for successfully designing public libraries, the research aims to develop a better understanding of the relationship between the interior morphology of public libraries and their likely effects on users' collective experience. In short, the present work aims to describe the 'spatial cultures' of public libraries. In fact, it also aims to analytically review the very idea of 'spatial culture' considering how the literature has conceptually defined it (e.g. Peponis 1985; Hillier 1989; Hillier 1996; Hillier et al. 1996) and considering the present case of the informal communities of Medellín. To this effect, a theory of spatial description is needed in order to make rigorous systematic comparisons between different buildings layouts. As it will be explained and discussed at length in chapters 2 and 3, this thesis uses space syntax as a supporting theory precisely because it advocates that spatial configuration is the essential link between programme and use (Hillier 1996). Furthermore, space syntax is not only a theory of spatial description, but it also provides a set of analytical methods for assessing the relationship between space and society. Chapter 3 will explain how some of these methods are generally used in syntactic research and chapter 4 will present a pilot study that presents how these methods were adapted to fit the present study. However, before detailing the methodological and theoretical background against which the research will be constructed, an account of the context of implementation of the Library-Parks Project is needed. The section that follows intends to familiarise the reader with the political and urban agendas that informed the Library-Parks Project, that is, with the formation of the 'Medellín Model'.

The 'Medellín Model'

Cities in Latin America grew exponentially in the first half of the 20th century, due to intense industrialization and rural migration (Echeverri & Orsini 2010, p.148). This growth resulted in many urban issues, particularly a widespread informal growth (Fiori et al. 2000; Brakarz et al. 2002). In general, these informal areas lack basic infrastructure and correspond to the most violent places in the cities (Echeverri & Orsini 2010, p.131). The Latin-American governments' first attempt to resolve these problems was to reallocate the urban poor to the edges of the cities, using coercive force as their mean to eradicate urban informality (Echeverri & Orsini 2010, p.136). However, the last quarter of the 20th century saw the emergence of a new strategy: that of the improvement (or 'upgrading') of the existing poor urban settlements (Turner 1972; Turner 1976; Fiori et al. 2000; Brakarz et al. 2002; Echeverri & Orsini 2010, p.136). Medellín is considered by many urban agencies, media experts and academics as a successful case of the 'urban upgrading' strategy.

In fact, the 'Medellín *Model*' is the term which the current literature often uses to refer to the collection of recent urban changes in this city (e.g. Brand 2013; Simpson 2013; Arciniegas 2014b; Colak & Pearce 2015). In a nutshell, the 'Medellín Model' may be synthesised as the *explicit* associations between environments that used to be poor and violent, and those that – due to a series of urban transformations of governance and infrastructure – became 'smart', 'innovative' and 'upgraded' (Wall Street Journal 2012; Vulliamy 2013; Henley 2013). Brand and Davila (2013) see that the social objectives of the projects of the 'Medellín Model' were "beyond conventional level of explicitness", highlighting a direct link between very complex urban problems and the interventions that resolve them. This can be clearly illustrated by the "Plan de Desarollo 2004-2007"[1] (Alcadia de Medellín 2004, hereafter referred as "Development Plan 2004-2007"), published by the Municipality of Medellín, and which has a great importance in the implementation process of the Library-Parks, as we shall see. The '*Development Plans*' are documents that work as administrative instruments to validate planning and management projects in Colombian territory.

The "Development Plan 2004-2007" is organised in two main parts. The first part presents a strategic set of programmes, projects and goals that would improve

1 In English, 'Development Plan 2004-2007'.

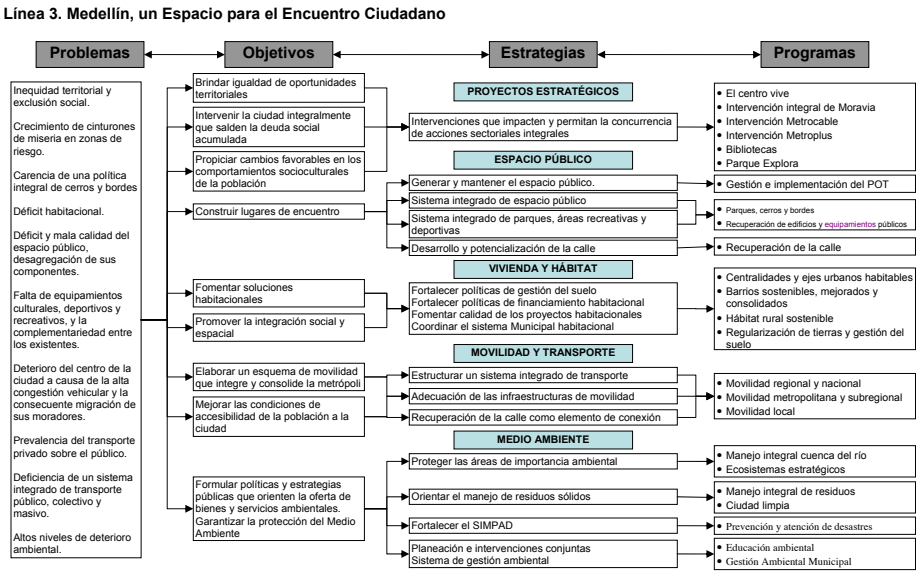


Figura II.3.2 Diagrama de Estructura de la Línea Estratégica Medellín, un Espacio para el Encuentro Ciudadano

Figure 1.02: Summarising diagram of the strategies of the 'Medellín Model', titled "Medellín, a Space for the Citizen Encounter" in the "Development Plan 2004-2007" Report. From the left to the right, social problems, objectives, strategies and programmes are all linked in a single and clear flow chart. (Source: Alcadia de Medellín 2004, p.96)

the quality of life in urban and rural settlements. The second part proposes short and medium term interventions that are in tune with these programmes and goals (Gobernación de Antioquia - República de Colombia 2011)[2]. The "Development Plan 2004-2007" starts by listing the main problems that Medellín faced at that moment: a crisis in (municipal) governance in violent neighbourhoods; the high levels of poverty and inequalities; the obsolete economic structures; and the poor integration between the commercial, cultural and scientific sectors. The "Development Plan 2004-2007" argues that the many interventions it proposes are directly addressing these problems. This is particularly evident in the summarising diagram in page 96 (Figure 1.02), titled "Medellín, a Space for the Citizen Encounter". In this diagram, one sees (from the left to the right) the social problems, objectives, strategies and programmes all linked in a single and clear flow chart. This diagram exposes the explicit, and perhaps naïve, attempt to connect complex aspects of urban life with complex aspects of urban management. Curiously, this attempt is regarded as one of the main factors for the international success of the 'Medellín Model'. This explicit

2 In English, 'Antioquia Government, Republic of Colombia'.

link between problems and solutions is what has often been appraised by media, international urban experts and multilateral agencies, making Medellín a model for the re-making of urban areas in Latin America and in the so-called 'Global South' (Arciniegas 2012, p.33; 2014b).

Rio de Janeiro illustrates the use of Medellín as a model of urban renewal. The Brazilian city is following many of Medellín's strategies in a context of preparation for major international events in the following years (González Vélez & Carrizosa Isaza 2011; Silva 2013). In 2011, the first aerial cable-car line for non-touristic purposes was opened, followed by the renovation of several stations of train lines. In 2010, two library-parks were opened, and a third one was opened in 2014. These libraries are also part of a greater urban upgrading project in poor neighbourhoods of Rio de Janeiro. However, the social and economic impacts of such projects are still unclear, as many parts of these projects are not completed yet (Silva 2013).

Returning to the case of Medellín, besides the explicitness of intentions, Echeverri and Orsini (2010) highlight that the shift of planning strategy – from coercive actions that aimed to reallocate inhabitants of poor areas, to the improvement or 'upgrading' of these areas – is one of the reasons for the success of the Medellín Model. The authors explain that the coercive strategies were inefficient because they did not address the origin of the problem. Governments spent time and public resources in repressive actions that were incapable of providing housing and infrastructure for the population, or including these communities within the formal city. Echeverri and Orsini (2010) posit that the 'urban upgrading' strategy is opposed to the 'coercive' ones as it sees the urban informality as a solution, rather than a problem. This fundamental shift in how to approach urban informality was originally proposed by Turner (1972; 1976). His numerous contributions as to how governments, social agencies, public and architects provided the ground to the formulation of the 'urban upgrading' project, which should focus therefore on the (participative) provision of infrastructures, buildings and programmes that could improve, rather than eradicate, urban informality.

Among the main strategies utilised in the project of 'urban and social upgrading' in Medellín, one may include: firstly, a transport strategy, with the implementation of the 'Metrocables' (aerial cable-cars), which enabled access to the main metro line to populations of underprivileged areas of the city. Secondly, the construction of

social housing projects in the same neighbourhoods. Thirdly, public libraries of 'great architectural impact'[3] were built (namely the Library-Parks Project), which offered a wide range of services to the surrounding communities. Fourthly, the programme of urban upgrade included the renovation of schools and other public facilities. A fifth and last strategy refers to the urban public space renovation, connecting all projects so as to expose the integration of investments. Moreover, the projects in Medellín are referred to follow a strategy of urban renewal called 'urban acupuncture', which promotes the idea that an urban area can be entirely affected by small, but precise, operations in very specific locations (Peña Gallego 2011).

The interventions were linked administratively by the "Proyectos Urbanos Integrales" ('Integral Urban Projects') and coordinated by the 'Company of Urban Development' ('Empresa de Desarollo Urbano', EDU), which is a state-led institution. Nevertheless, although it was a state-led company that coordinated the construction of the new buildings and urban spaces, an interesting aspect to be highlighted is the participation of the local communities in the planning decision and funding of the projects. Coupé, Brand and Dávila (2013) clarify that mechanisms for participatory planning and budgeting are part of Colombia's constitution since 1994, functioning as a fundamental factor for the promotion and strengthening of local communities. Echeverri and Orsini (2010, p.142) highlight that local communities were invited to participate in all planning phases, from diagnostics to construction. The authors explain that local neighbourhood groups were organised to deal with the participatory process. These groups were linked to the 'Boards of Community Action' ("Juntas de Acción Comunitaria", which existed previously to the urban renovation). The authors argue that this link was important to guarantee political representation for these communities in the participatory process. However, as Fiori et al (2000) argue, although participation can be considered the 'cornerstone' of poverty alleviation policies, assessing how it is integrated in a democratic process remains a complex challenge.

Indeed, some authors are critical to the ways in which this 'participation' took place in Medellín (e.g. González Vélez & Carrizosa Isaza 2011; Arciniegas 2014b),

3 One of the mayors of Medellín emphasized the importance of architectural quality in these projects, formulating that their aim was "to activate the power aesthetics as a motor for social change" (Salazar apud Brand & Dávila 2013).

arguing that the model of city that was constructed is tuned more with political and economic interests of the local elite, than to the most recurrent or urgent needs of the majority of the city's population. This is due to two main factors. The first one is related to the identification that the problematic areas of the city were the ones where the poor population lived. In other words, the construction of a discourse of "areas of 'disorder'" in the city was a fundamental precedent for the success of the 'Model' (González Vélez & Carrizosa Isaza 2011). Poverty, violence and drug trafficking coincided in these "areas of disorder". With the view to 'upgrade' these areas into 'areas of order', a series of projects started to reshape its urban space since 2001. The second factor concerns the mechanisms for public participation, which allowed little to be actually changed in the projects by the inhabitants of these areas (Montoya 2014). In the case of the Library-Parks, for example, Herman Montoya (2014) explains that participatory processes had to be extensively improved for what he called the 'second generation' of Library-Parks, after the first five were built (namely, the Library-Parks San Javier, España, La Ladera, La Quintana and Belén). Moreover, these projects made possible to include these areas into an urban economy that a few elite groups took control – all under the motto of a 'greater good' (González Vélez & Carrizosa Isaza 2011; Arciniegas 2014a; Arciniegas 2014b).

Arciniegas (2014b) suggests that, as a result of this lack of real participation from the inhabitants of the transformed areas in the making of the 'Medellín Model', these "grandiloquent state infrastructures" overlooked *community self-management*. This is clearly perceived as many of these spaces are regulated by *prescribed* social rules that define the 'correct' civic participation to be constructed, which is a fact that can be illustrated by two examples: the 'Cultura Metro' ('*Metro Culture*') and the "Manual de Convivencia Ciudadana" ("*Manual for Citizen Co-inhabitation*"). The 'Cultura Metro' is a set of regulations that aims to "model the construction of a new civic culture" (Metro de Medellín 2015) in the metro of Medellín, and which are reinforced through public campaigns and by staff members (Agudelo et al. 2013). This set of regulations extends to the 'Metrocables', as they are part of the metro system of Medellín. Therefore, aside from an impact on the urban mobility – an aspect thoroughly investigated by Dávila et al (2013b) – the 'Metrocables' have the potential to expand the influence of the 'Cultura Metro' to the everyday life of the areas of the city that were previously developed on the basis of self-management. This

potential influence is precisely the topic recently investigated by Goodship (2015). Studying the immediate economic and social impact of two Metrocables stations (Santo Domingo and San Javier) through empirical observations and space syntax analyses, he argues that the presence of the stations affects its surroundings at a small scale, increasing the number of passers-by and generating a 'high street effect' in the streets that provide immediate access to the stations' entrances. From his findings, one may suggest that since the stations are at the core of this 'urban change' – and since they are controlled by a set of behavioural rules (the 'Metro Culture') – this 'urban change' is potentially largely influenced by these rules.

The "Manual for Citizen Co-inhabitation" is a document that illustrates a prescription of a set of rules for the 'improvement' of behaviours. The 'Manual' consists of a set of regulations of behaviours in the public and private spaces of the city. It aims to "work as a project of city" (Alcadia de Medellín 2007; 2013), regulating, for example, how neighbours should resolve loud noise, when and where alcohol should be consumed, and how drivers should proceed in emergencies. Puzzlingly, at the same time that it prescribes the correct behaviours for a variety of urban conflicts, the 'Manual' promotes the idea of self-regulation of social relations between citizens (González Vélez & Carrizosa Isaza 2011). As it will be discussed further in chapter 2, the idea of a 'self-regulated society' embeds a twofold process: to be regulated by all others and to engage in a process of participatory and revolutionary action and regulation (Bennett 1995). What is evident in these two examples – the 'Metro Culture' and the "Manual for Citizen Co-inhabitation" – is that the objectives of the urban interventions of the 'Medellín Model' extend beyond improving the spaces of everyday life of citizens: they intend to transform behaviours through sets of rules. In their turn, these rules carry an explicit ideology of everyday collective life that seems to ambiguously constrain and promote self-regulation.

One may then interrogate whether this ideology exposed by these two examples is circumscribed to the Metro, Metrocables and new public spaces, or whether it is also part of the other projects of urban upgrading of Medellín. Among all the projects of urban upgrading, the Library-Parks stand in a critical position, as they become the architectural manifestation of both top-down ideological propaganda[4] and everyday

4 As it will be discussed at length in the section that follows, Brand and Dávila (2013, p.42) posit that, in the case of the Library-Parks, the presence of the state in the popular areas of the city is

community engagement. Understanding the functioning of the Library-Parks seems, therefore, to entail the study of mechanisms of control/resistance between state-led administration and self-led societies, exposing the effects of the 'Medellín Model' in everyday life.

Public libraries as instruments to model socialisation

The Library-Parks were built to foster educational, cultural and social practices of their surrounding neighbourhoods (Peña Gallego 2011; Rodríguez et al. 2013). As mentioned above, the "Development Plan 2004-2007" is one of the two documents that underpins the development of the Library-Park Project (Peña Gallego 2011; Rodríguez et al. 2013). The other document was the "Plan Nacional de Lectura y Bibliotecas"[5] (Ministerio de Cultura & Ministerio de Educación Nacional 2003), which establishes administrative recommendations that aim to improve editorial and librarianship practices as well as the Colombian reading culture (Giraldo Giraldo & Román Betancur 2011; Montoya 2014). The Project is part of a greater Programme of digitally connected libraries ('Red de Bibliotecas'[6] and 'Medellín Digital'[7]), which includes the 'Biblioteca Publica Piloto'[8] (UNESCO 1957) and all its branches. The programmes, 'Red de Bibliotecas' and 'Medellín Digital', offer open access to a wide range of resources online, from books, to videos and other forms of digital content. In this sense, the Library-Parks can be considered as being integrated within a digital programme. As we shall see in chapter 2, the internet influenced libraries' role of collecting and organising an educational content. In summary, while in traditional libraries this role is one of their key purposes, in libraries integrated within a digital programme this role has been provided mainly by the internet[9]. In addition, the Library-Parks also offer a combination of programmes that aim at including these

essentially 'architectural', particularly due to the contrasts between the buildings and their contexts. Aside the use of architectural contrast with its surroundings, the buildings also construct historical contrasts, as even the sites chosen are references to a 'Medellín of the Cartels' (Montoya 2014) – so that the buildings function as symbols of a successful 'social upgrading'.

5 In English, 'National Plan of Reading and Libraries'.

6 In English, 'Network of Libraries'.

7 In English, literally '*Digital Medellín*'.

8 In English, 'Pilot Public Library'.

9 The literature often distinguishes between 'traditional' public libraries and 'contemporary' ones. This topic will be discussed in more detail in chapter 2.

communities in the economic and civic rationales of the information society – offering courses of informatics, small business administration, literacy, language, arts and etc. (Peña Gallego 2011; Jaramillo 2012; Empresa de Desarollo Urbano 2014). Studies (e.g. Ortiz 2012) indicate that the Library-Parks have a positive effect in the education of people of the surrounding neighbourhoods, mainly due to their cultural programmes and the open access to internet and computer facilities. Aside these programmes, these buildings are also "for collective life", as they work as extensions of urban public space (Giraldo Giraldo et al. 2009; Franco Calderón & Zabala Corredor 2012; Jaramillo 2012). In other words, the libraries' spaces are liberated for other types of programmes and uses (other than those of a 'traditional' public library). However, it is precisely the spatial rather than economic and literary impact of the Library-Parks that has received very little attention in the literature.

In an interview conducted in 2014, Herman Montoya, Leader of the Project of Library-Parks at the Municipality of Medellín (Alcadía de Medellín), explained that the very name of the Project in Spanish – 'Parques Biblioteca' – emphasises the idea that these buildings are public spaces in the first place. He also highlighted that the Project's main objective is "to use public architecture as means to achieve a reinvention of social practices" (Montoya 2014). Montoya explains that this 'social role' is aimed to be constructed through two main strategies in the case of the Library-Parks: firstly, to use architecture as means *to represent* an 'upgraded' society; and secondly, to 'produce' social change through the arrangement of spaces that can generate a new sense of community and citizenship through informal co-inhabitation and interaction.

In regards to the first role – to 'represent an upgraded society' – Brand and Dávila (2013, p.42) posit that the architectural contrast between the Library-Parks and their surroundings brought by the buildings' scale, materials, and form emphasise the state's presence in those areas (Figure 1.01). Indeed, one of the mayors of Medellín highlighted the importance of architectural quality in these projects, formulating that their aim was "to activate the power aesthetics as a motor for social change" (Salazar apud Brand & Dávila 2013). Brand and Dávila suggest that this contrast opens up the debate about the quality of public architecture for Latin-American cities. In addition, this contrast also introduces the topic of participatory planning and how the state is made 'present' in popular neighbourhoods. Aside this 'architectural contrast' of

the library buildings with their surroundings, the buildings also aim to construct 'historical contrasts' (Montoya 2014). These 'historical contrasts' are expressed by the sites chosen for these buildings, as they are all in places that have a recent history of strong violence (executions camps, drug trafficking bases, prisons) that reminds of the 'Medellín of the Cartels'[10] (Melguizo & Cronshaw 2001; Montoya 2014). The intention in the programme is to use the sites and the 'contrasting' and 'monumental' architecture of the library buildings as symbols of successful social upgrading. This idea is broadcasted internationally, influencing other cities (e.g. Rio de Janeiro, Brazil) that started similar strategies in their own contexts (González Vélez & Carrizosa Isaza 2011; Silva 2013).

The second strategy used by the Library-Parks Project refers to the idea that these buildings are supposed not only to *represent* urban change through their broadcasted monumentality, but most importantly to *produce* it through the arrangement of spaces that can generate a new sense of community and citizenship through informal co-inhabitation and interaction (Montoya 2014; Franco Calderón & Zabala Corredor 2012; Empresa de Desarollo Urbano 2014). As it was mentioned above, the term 'Park' in the project title "comes first[11] precisely due to the fact that these facilities are public spaces in the first place" (Montoya 2014). In other words, great importance is given to the ways in which the libraries are used, and to the potential social interactions that these forms of use might produce. Consequently, one may suggest that these forms of use and social interaction acquire a 'metonymic function', as they offer a glimpse of the transformed society of Medellín.

However, how can social change depend on the public use of a building? Intuitively we may suggest that 'public use' implies, to a certain level, that forms of occupation, movement and interaction are un-predicted and unprogrammed. In that sense, if one considers all the investment in assuring that the Library-Parks work as extensions of public space, that is, to be open to all comers and to allow a certain level of freedom of use, they cannot be regarded as mere educational or cultural facilities. As mentioned above, studies (e.g. Ortiz 2012) indicate that the Library-Parks have a positive effect in levels of education in the surrounding neighbourhoods, mainly due

10 In the 1970ies and 80ies, Medellín used to suffer from the control of major drug trafficking groups known as Cartels. These drug trafficking groups occupied particularly the "comunas", the poor neighbourhoods that grew on the hills of Medellín (Echeverri & Orsini 2010, p.134).

11 In the name in Spanish ('Parques Biblioteca').

to their cultural programmes and due to the open access to internet and computer facilities. However, the literature has not yet analysed how these facilities work beyond their educational aims. In particular, how does the public use of space associate with the social intentions of the Project?

The hypothesis that there is a 'metonymic relationship' between use of space and the social aims of the Project is also present in a study carried out by Franco Calderón and Zabala Corredor (2012). They investigate on the impact of the urban interventions of the Medellín Model on the sense of citizenship and participation of local communities. They suggest that the two main functions of the architectural interventions are to represent and to reproduce social change. They argue that the buildings are first "objects", a condition that "contributes to the consolidation of the sentiment of belonging and citizen identity" through their function as reference points. Secondly, they are for "collective use", working as "centres of encounters" for the community. In this way, the buildings would work as "*instruments* for the construction of citizenship". The authors, however, do not elaborate *how* the buildings may work as 'instruments'. Nevertheless, what is evident in their study is that the political agenda of the 'Medellín Model' turns the relationship space/programme/use in the Library-Parks as more than just a mere library use. It underpins the formulation that the relationship of space and programme in these buildings is *instrumental* in 'upgrading' social behaviours. At the same time, the background political agenda of the 'Medellín Model' turns the patterns of use of space – that is, the relationship of use and space – as *representatives* of this 'upgraded society'.

In this sense, the Library-Parks could be considered to be manifestations of a similar process observed in the formation of building types of the 19th century in Europe (a proposition that will be developed further in chapter 2). This concerns the use of architectural arrangement to organise behaviours towards an 'disciplinary society'. This topic will be discussed in more detail in chapter 2. In a nutshell, Bennett (1995) explains that 'disciplinary society' is the term used by Foucault (in most of his oeuvre) to refer to the ordered and self-regulated society, as opposed to the misruled and riotous 'crowd'. This process was studied in the formation of prisons (e.g. Foucault 1991; Steadman 2014), museums (e.g. Bennett 1995), department stores (e.g. Markus 1993; Bennett 1995), hospitals (e.g. Steadman 2014), and libraries (e.g. Markus 1993). In the case of the Library-Parks, the hypothesis that these buildings are capable of

producing social change through the use of their interior spaces and programmes is evident in many official documents (e.g. Fajardo Valderrama 2007; Empresa de Desarollo Urbano 2014) and studies (e.g. Peña Gallego 2011; González Vélez & Carrizosa Isaza 2011; Franco Calderón & Zabala Corredor 2012). These documents and studies do not make direct reference to a 'disciplinary society'. Nevertheless, the idea that the buildings are capable of 'organising behaviours' and 'upgrading social practices' is similar in many aspects to the proposition of a 'disciplinary society'. However, none of these studies and documents analyse *how* the Library-Parks organise behaviours through public use.

Considering the cases of the 'Metro Culture' and the 'Manual for Citizen Co-inhabitation' that were discussed in the previous section, one possible answer is that behaviours in the Library-Parks may be organised through prescriptions of sets of rules. Indeed, the Mayor of Medellín[12], Sergio Fajardo Valderrama, published the "Pacto Ciudadano de cuidado y apropriación de los Parques Biblioteca" ("Citizen Deal for the care and appropriation of the Library-Parks" 2007, hereafter referred as "Deal") by the time of the opening of the first Library-Parks. González Vélez and Carrizosa Isaza (2011) explain that the Medellín Municipality made large use of 'Deals' to implement their social upgrading transformations. The 'Deals' are documents that endorse social contracts between the state and the population (González Vélez & Carrizosa Isaza 2011). The 'Deal' that concerns the Library-Parks states that these buildings are primarily for "encounters and conversations". It then states that users should visit the buildings "united by the feeling of belonging". Finally, it lists "commitments" that the users should follow, among which one should mention: users should have a respectful relationship with other users and with staff members; the spaces of the libraries have internal regulations; users should make the Library-Parks work as points of connection between the surrounding communities and the Municipality; in the Library-Parks, public interests prevail over private ones; etc. Curiously, the 'Deal' omits the fact that these buildings are also libraries. The only reference to this educational/cultural role is found when the 'Deal' reminds users to return books and other collection materials in good state and time. In other

12 Sergio Fajardo Valderrama was the Mayor at the time of the opening of the first Library-Parks. The sequence of Mayors of Medellín ("Alcades") since the opening of the Library-Parks was the following: Sergio Fajardo Valderrama (2004-2007), Alonso Salazar (2008-2011), Aníbal Gaviria Correa (2012-2015) and Federico Gutiérrez (2016-2019).

words, the *public use* of the buildings is what truly the 'Deal' is organising. As a result, what the 'Deal' constructs is a model to identify legitimate/illegitimate kinds of use. Therefore, previously to the actual use of the buildings, it makes possible the distinction between desirable behaviours to undesirable ones.

However, community appropriation is what truly 'endorses' the collective value of these public libraries (Rodríguez et al. 2013). At this point one may see that the use of the spaces of the Library-Parks carry a twofold political value: on one hand, they give materiality to the civic ideologies of the Project (if the libraries were emptied of users, they could not maintain their status as representatives and producers of an 'upgraded society'). On the other hand, this same 'status of representation of collectivity' (or 'metonymic function', as we called earlier) that is given to the Library-Parks stimulates a political awareness in its users, as it renders the community visible to itself (Jaramillo 2012). This 'self-visibility' may happen through 'programmatic' means – such as educational courses, festivities and meetings – and through the everyday social practices in the spaces of these buildings. The latter, as opposed to the former, becomes a collective entity *only as it is happening* in space.

To conclude, considering all the attention and endorsement given by the media, international organisations and academic works, the role of *representation* of this 'urban change' may be considered successful. However, the ways in which these buildings are being used and the ways in which architecture gives structure to these forms of use as a collective whole remains to be fully understood. Co-inhabitation that is expected to happen in the libraries is fundamentally different from the one that happens naturally in public spaces of those informal contexts, since the former is housed by architectural space instead of urban space. This fact opens a series of questions regarding how the spaces of a building may serve as a platform for public use. In other words, how a building may be as public as a 'park'. Furthermore, it is important to consider that the term 'Library' of the Project title refers to a set of different programmes that aim at educating local users so that they can be integrated in a "21st century democratic process" and the rationale of the information society (Peña Gallego 2011). As we have seen, for this reason the libraries offer courses of informatics, small business administration, literacy, language, arts and etc.. Implicit in these programmes is the idea that the library should help organising this 'new society' into a productive one. In addition to these educational programmes, the

Municipality of Medellín established a set of rules that may be used to identify legitimate from illegitimate forms of public use.

The question stated above – 'how does the programme of the library interact with the emphasis in offering public space?' – becomes even more relevant when considering the social and cultural context of Medellín as we have briefly revised. As we discussed, these buildings are not supposed to function only as a library, but to promote social change through education and community empowerment. How does architecture combines both roles? If Medellín is considered a successful case of urban and social upgrading (as the literature suggests), and if the libraries have a pivotal role in this success, what lessons can be learned from these buildings? In other words, how can we typify the interrelation between architecture, programme and social function in the Library-Parks and understand the effects of these three aspects in the use of the buildings? Finally, how does this use relate back to the agendas of urban and social change?

1.2. Theoretical Framework and Significance

These questions raised about the Library-Parks aim at understanding the relationship between architectural space and social function in public libraries. This topic, as chapter 2 will expose, is currently under great public debate. This is mainly because the value of public libraries is being questioned in the light of new technologies of communication (for example the internet and mobile technologies). The literature shows that today libraries house in their premises many more activities than they did in the past. These activities were mainly about the organisation of knowledge and access to information. Since digital technology has offered everyone rapid and wide access to information, libraries have undergone programmatic transformations (Sears & Crandall 2010; Verheul 2010). Imholz (2008) argues that the internet liberated the library of the task of collecting an educational content, changing its focus to the social experience of such content, particularly because "a social experience is what differentiates the library from sitting at home in front of the computer screen" (2008). She suggests that "the 21st century library will be a place to access people, not information" (2008). In this regard, however, we may interrogate how are public libraries adapting their spaces in response to their recent

organisational changes? The literature from librarianship field is rich in detailing the impact of the internet and other programmes in the organisational administration of public libraries. As it will be discussed in chapter 2, these changes influence the location of library branches, the roles of librarians, the traffic and demography of visitors, the use of material collections, etc.. However, when reviewing the literature from librarianship field, it is clear that the spatial aspects of the recent organisational changes in libraries have not been extensively discussed.

In addition, before investigating about the *transformation* of public libraries, it is fundamental to understand their *formation* as a building type, as it may reveal how they originally performed their social intentions through the organisation of architectural space. Similarly to museums, department stores and international exhibitions, public libraries emerged in the 19th century. As Bennett (1995, pp.6, 71) explains, these institutions are associated with an intention to educate society through providing public access to artefacts in a manner so as to "communicate a specific cultural meaning and value". 'Public access' and 'educational function' are indeed fundamental in the formation of public libraries. In a historical account of the emergence of public libraries, Harris (1999, pp.148–161) highlights that what is generally meant as 'public library' in the Western world is "the general library that is not only publicly owned and tax-supported, but also open to any citizen who desires to use it" (1999, p.149). However, this 'open access' should not be regarded as 'freed from control'. On the contrary, in addition to communicating cultural meanings and values through the ordering of artefacts, Bennett explains that public libraries, museums, department stores and international exhibitions also intended to educate visitors through regulating their movement and behaviours (1995, p.100). Bennett formulates that these institutions were "heirs to earlier utopian conceptions of a society perfectly transparent to itself and, as a consequence, self-regulating" (1995, p.47). Consequently, these institutions have shown a similar concern in regards to performing this regulation in ways that are both unobtrusive and self-perpetuating. In this sense, and as we shall discuss in detail in the next chapter, by means of their capacity to educate behaviour simply through its open access, public libraries had a "positive role in the process of government" (Harris 1999, p.148), an argument also constructed by Bennett in the case of museums (1995, pp.6, 47).

However, how did public libraries combine open access and behavioural control in the organisation of their spaces in their formation as a building type? What are the spatial mechanisms that induce discreetness in the exercise of power? In the case of museums, Bennett (1995) traces the origin of techniques of unobtrusive control from the disciplinary tactics developed in the formation of the penitentiary system in the 18th century. He makes direct references to the ideas outlined by Foucault, such as 'panoptic surveillance', 'disciplinary control of the mind' and 'self-regulation'. These are all part of what Foucault calls 'the disciplines': the set of technologies of social control that act through transforming the body of the person subjected to control into a docile, efficient (economic) and useful social force (1991). As we shall revise in detail in chapter 2, the current programmatic changes in public libraries might underpin more than a mere change in how information is organised and accessed: they might indicate fundamental shifts in how power relations between society and state are manifested and how technologies of social control are applied. Architecture, we believe, has a pivotal role in these transformations. Therefore, a first objective of the present work is to:

> ***(I)*** *Understand the role of architecture in the construction and control of spatial cultures in public library environments, capturing their process of transformation from highly controlled spaces to informal social environments.*

These programmatic transformations that public libraries are currently undergoing suggest a shift from an environment where visitors were highly discouraged to interact with each other, to an environment where visitors are welcomed to act freely and interact 'informally'. In other words, these transformations suggest a weakening of the organisational control of activities in space. Therefore, the third topic of literature refers to studies of space as a generative/conservative field, in terms of structuring the distribution of patterns of movement, co-presence and interaction. It addresses the ways in which space and the distribution of programme affect this potential generation and the social patterns that are associated with the weakening or strengthening of this influence. This thesis reviews the main literature on this topic, focusing on space syntax studies since they offer a thorough methodological framework to analyse the relationship between spatial arrangement and patterns of use. In particular, space syntax literature exposes how the arrangements of space,

programme and social practices may constrain or liberate forms of occupation and movement.

In general, space syntax research considers the notion of social programme as constraining the relationships between space and use. This means that, whenever there is no programme, use will probably follow the configurative laws of space (Hillier 1996; Hillier et al 1984). This idea starts with the problem that in buildings, in contrast to public urban spaces (Hillier et al 1993), there is a predefined structure of how activities and interactions should take place, before the very act of inhabitation. This descriptive model can be very detailed or very short, an aspect that influences the extent to which a programme can transform the configurational potential of a building in creating movement and occupation patterns. This led to the definition of two opposed building types: strong and weak programme buildings (Hillier 1996). A strong programme building (1996:196-198) is the type that presents a very detailed and long description of interfaces and activities: everything that happens in the building is previously determined and, therefore, this type strongly conserves social practices. A weak programme building (1996:199-201), on the other hand, is the type that presents a non-detailed description of interfaces and activities, where Hillier suggests the idea of "all-play-all interface", whose movements "reflect the pattern of routes from all points to all other points" (1996:201), resembling, therefore, a public urban system. In 'weakly programmed buildings', the overlaying of different social groups and practices would enable the emergence of spontaneous and unprogrammed interfaces and activities (Hillier 1996, pp.201, 255). Therefore, different from strongly programmed buildings, in weakly programmed ones the programmatic roles cannot be seen as the source of explanation and synthesis of the building's functioning, as this functioning is formed by unprogrammed social practices, and the way in which they are spatially distributed. In fact, 'weakly programmed' buildings could even be associated with eradication of power relations, since not only they are opposed to an environment where a predefined programme defines roles and social structures, but also since their users would be constantly engaged in practices of spontaneous movement, occupation and interaction.

However, we shall suggest that there are two main definitions of social programme: firstly, there is programme as the description of activities of an organisation. Secondly, we can see programme as the distribution of such

description in space. The first definition exposes the *transpatial* (Hillier 1996) or perhaps 'conceptual' aspect of programme, whereas the second exposes the *spatial* aspect of it. Moreover, users may be categorised according to programmatic roles (e.g. in public libraries, 'visitors' and 'staff members'). The spatial distribution of programmatic roles through room labelling influences the separateness or linkages between different programmed activities. The spatial distributions of users that carry different programmatic functions (e.g. in public libraries, 'visitors' and 'staff members') influence how spontaneous or organised are social practices. However, the ways in which these two aspects – spatial distribution of programmatic roles through room labelling and through functional categorisation of users – intertwine in the formation of spatial cultures in weakly programmed buildings have not been extensively discussed. In short, this research aims to:

> ***(II)*** *Formulate better definitions of 'weakly and strongly programmed buildings' in terms of their social potentials and spatial mechanisms.*
> ***(III)*** *Provide a method to capture the formation of spatial cultures based on unprogrammed practices between different categories of users (namely, visitors and staff members in public libraries).*

1.3. Methods and Case Selection

These questions and objectives are addressed against the background of syntactic research. Space syntax studies have established a theory of how spatial layout embeds social information ('rules of society to space', Hillier 1989) and how it influences patterns of movement, co-presence and interaction ('rules of space to society', ibid). Chapter 3 will provide a full discussion on the aspects of space syntax approach that concern the present work. In terms of methodology, this work employs a combination of qualitative and quantitative research methods to address the research questions. The main data gathering technique consisted of observations on site and spatial analyses using computer software. Detailed observations of people's activities and demographic information were performed during the fieldwork in March and April of 2014. To a lesser extent, the work relies on semi-structured interviews with key informants. The spatial analyses of the studied buildings use mainly methodological techniques from space syntax research. In

particular, we perform 'spatial integration analyses' – which I explain in detail in chapter 3 – in order to firstly unfold the functioning of the spatial layout (chapter 5) and different programmes in the libraries (chapter 6), and secondly to contrast this functioning with the patterns of use in the libraries (chapter 7).

In order to develop and test the methods used in the research, a pilot study was carried out (presented in detail in chapter 4). It investigates two public libraries in London, Kensington Central Library and Swiss Cottage Library, addressing how spatial configuration and programmatic roles influence the patterns of use. These two libraries were chosen as they have similarities (e.g. size of collection, set of programmes, floor area, cultural context, etc.), but present fundamental differences in regards to spatial configuration and how they distribute their programmes. Kensington Central Library's spaces are linked forming a tree-like structure, whereas Swiss Cottage Library's spaces form rings of circulation. These differences expose how spatial cultures in public libraries may be affected by spatial configuration and the spatial distribution of programmatic roles. In summary, it is found that tree-like structures tend to separate visitors based on programmatic roles, while 'ring-like' structures tend to mix different visitors[13]. It is also found that some programmes may work as attractors of movement and interaction (e.g. the children's library), while others may function as constraints to movement and interaction (e.g. the study spaces). It is proposed that the ways in which these different programmes are placed in the layout of space, forming sequences, affect the formation of spatial cultures. For example, the children's library in Swiss Cottage Library is located in a highly integrated space that is close to the entrance (shallow[14]), and with many connections to adjacent spaces (generating rings of circulation). This condition enhances its function as an attraction of movement and interaction, spreading its influence to many spaces of the building. On the other hand, in Kensington Central Library, the children's library is located in a highly segregated space that is distant to the entrance, and with only one connection to an adjacent space. This condition limits not only the group of visitors that engage with this programme, but also the influence that this programme

13 The study differentiates visitors from the point of view of their purpose to go to the libraries (this is explained at length in chapter 4).

14 These terms will be explained in more detail in chapter 3. In short, if one considers the spatial system from the entrance, one may see that some spaces are 'shallow' (close to the entrance) and others are 'deep' (the ones that are most distant to the entrance).

has in the culture of interaction and movement in the rest of the building. A similar situation is observed in relation to the reading spaces and computer room in both libraries.

The main findings of the pilot study do not concern educational purposes, i.e. the study does not assess whether these differences have an impact on reading or studying culture. In other words, although the study exposes how an educational culture towards socialisation as a form of learning materialises in space as collective practices, it does not assess how this pedagogical practice impacts on learning skills or educational performance. Rather, the focus is on the public use of the buildings and on the spatial cultures that emerge from this public use. Therefore, the main proposition of the pilot study – that spatial cultures of public libraries are influenced by types of spatial arrangement, and by the location of particular programmes – is of great relevance for the case of the Library-Parks Project, which places a great emphasis on the public use of these buildings, and on the cultures that emerge from this use. In this sense, the pilot study helped to refine both the research questions and the methods used in the study of the Library-Parks.

In synthesis, through a study of spatial configuration, programmatic distribution and patterns of use of the Library-Parks, this research expects to discuss and theorise on the role of public libraries in constructing informal spatial cultures and communicating collective values in society. The research is structured to first analyse how the Library-Parks' roles as formal learning facilities, interactive learning facilities and extension of public space are manifested in their spaces. More specifically, it *proposes types of Library-Parks in relation to their arrangements of spaces and programmes, suggesting what kinds of patterns of co-inhabitation may be retrieved as implicit in each of these arrangements* (chapters 5 and 6). This first exercise is related to the idea of 'virtual community'. The arrangement of space produces a field of probable patterns of use that precedes its manifestation as collective social practices (Hillier 1989). In space syntax research, this field is called 'virtual community', since it describes an unrealised pattern of use. In other words, 'virtual community' is not the same as 'spatial culture', since the former derives directly from the affordances of the design of space, whereas the latter is the result of actual use of space (see Hillier 1989; Ziada 2005). Aside clarifying how the literature currently defines these concepts, the present work seeks to innovate in developing them further. Specifically,

this (potential) innovation starts from the fact that these concepts are often associated with urban environments, yet this thesis 'applies' them to the interior morphology of public library buildings. In this sense, in analysing buildings as public spaces, the thesis aims to critically review the collective potential of architecture – in particular, its interior morphology – considering (and assessing) the main aims of the Project of Library-Parks.

Complementary to the first analytical exercise, the second group of analyses in the thesis is indeed related to the idea of 'spatial culture' (chapter 7). After investigating what types of Library-Parks exist based on their arrangements of spaces and programmes – and on the potential 'virtual communities' that these arrangements may form – the work looks at the actual patterns of use of space. The study interrogates: *how are the libraries used? How does the spatial structure and programmatic distribution relate to the patterns of use? Finally, how does the presence of staff members observing activities affect visitors' co-presence and interaction?* In summary, the main exercise proposed is to analytically identify *types* of relationship between *types* of architectural affordances and *types* of spatial practices. In this sense, the main objective is to define the spatial cultures of public libraries based on this typological exercise.

The selection of cases

The research looks at Medellín as a main case study since it is considered as a model for other cities in Latin America, focusing particularly on the Project of Library-Parks. There is a significant gap in scholarly research about these buildings. The literature on the 'Medellín Model' clarifies how the 'upgrading' context of Medellín gives a particular relevance to the Project of Library-Parks in constructing/ strengthening community values. However, the great majority of studies does not address the Library-Parks' Project directly. In general, studies either discuss all projects of the upgrading process of Medellín, or focus on another project (e.g. the many studies that address the cable-cars projects), mentioning little about the Library-Parks.

The thesis concentrates on the first Library-Parks which were built in Medellín due to four main factors: firstly, the pilot study served as a reference to the number of buildings that could be analysed in the timeframe and resources available to the research. Five buildings was the number considered feasible. It is important to acknowledge that this number of cases sets a limitation to the statistical validity of the work. Nevertheless, as argued earlier, the intention is to work towards developing a theory from empirical and comparative analysis of a limited range of real cases, rather than the production of exhaustive data on the Library-Parks. Secondly, due to the focus on the *public use* of the Library-Parks, it was considered important to address buildings that were already part of the everyday life of the inhabitants of their surroundings (some would have been constructed since almost 8 years prior to the visit). Thirdly, the designers of the first Library-Parks had no prior reference to what a 'Library-Park' should be, what worked or not. In other words, these first buildings worked as models for the others that came afterwards. Fourthly, some of the architectural features of these first buildings had to be adapted due to administrative issues regarding how users could or could not use the library. This was a significant fact that could help expose the disjunction between users' behaviours, administrative need for control and architectural arrangement, which are precisely the three intertwined aspects that this research looks at to address the research questions.

1.4. Outline of chapters

Having briefly outlined the main theoretical and methodological topics of the thesis, we may now outline its structure to help follow the flow of the argument and briefly present the main findings of the empirical and analytical parts of the research.

Chapter 2 – Literature review, Part I: The social function of public libraries

The literature is organised in two parts, which correspond to chapters 2 and 3. Chapter 2 opens the theoretical discussion from the specific case of public libraries. It reviews and discusses literature on the relationship between the spatial layout of public libraries and their social goals. It also addresses the current organisational

changes that public libraries are undergoing. As mentioned earlier, the literature from librarianship field explains that public libraries are transforming from spaces for the regulation of visitors' behaviours or the organisation of educational content to multifunctional spaces of informal encounters. This transformation would be due to the widespread digital access to information and the increased value given to socialisation as a form of learning. The literature is rich in detailing the impact of these changes in the organisational administration of public libraries. However, the chapter identifies an absence of clear and systematic analysis of the spatial aspects of these changes.

In order to address this gap, the discussion moves to the formation of public libraries as building types in the 19th century. The aim is to clarify what were the 'traditional' social intentions of public libraries (*why* they came into being) and how these social intentions were manifested in space and programme. It is significant that the literature acknowledges that public libraries are similar to other public buildings of the same period (e.g. museums and department stores), combining public access with an intention to educate society. Their intention to educate society is manifested both in the regulation of visitors' behaviours and in the ways in which the artefacts that they display (e.g. books in libraries, or works of art in museums) are organised and distributed in space. In this sense, public libraries are considered to embed power relations through the educational organisation of access to knowledge. However, the chapter shows that the internet and the value given to socialisation as a form of learning suggest that libraries are shifting from a space for the organisation of knowledge to a space for the organisation of social relations. This implies therefore that, aside the programmatic changes, there is a fundamental shift in how power relations are embedded and manifested in library spaces. The chapter ends by emphasising how a study on the Library-Parks may clarify some of the gaps in knowledge found in the literature.

Chapter 3 – Literature review, Part II: The interrelation between space and society in public libraries

This chapter complements the previous one, reviewing literature on the interrelation between space and society in public educational buildings, such as public libraries and museums. It starts by providing an overview of the methods that have been used in previous studies on public libraries, considering the body of literature revised in chapter 2. This part exposes that the literature often approaches space discursively (through programmatic labels such as 'maker space', 'reading space', 'children's library', etc. or through metaphors such as 'internet-cafe', 'third space', 'personal space'[15], 'parochial realm'[16], etc.), but not analytically. This gap in the understanding of the functioning of space in public libraries led the present work to adopt the theoretical and methodological framework from space syntax research, which provides tools to analyse the relationship between space, programme and social practices in both discursive and non-discursive ways. Space syntax is therefore reviewed in a section of this chapter. This section first describes the basic premises of this theoretical and methodological approach. Then, it exposes the relevance of this approach to the current work. In other words, the intention is not only to review the methods and theories from space syntax, but also to expose the context in which the current work may be placed, which highlights its contributions to the field.

Chapter 4 – Pilot study and Procedures of analysis for the cases of Medellín

This chapter presents the pilot study in London, which was conducted in order to develop and test the methods of the research. The pilot study was conducted in 2013 and presented and published as a paper in the 9th International Space Syntax Symposium in Seoul[17] and in the A|Z Journal of Architecture[18]. Aside helping to

15 (Given & Leckie 2003)

16 (Aabø & Audunson 2012)

17 Capillé, Cauê, and Sophia Psarra. 2013. "Space and Planned Informality: Strong and Weak Programme Categorisation in Public Learning Environments." In *Proceedings of the 9th International Space Syntax Symposium*. Seoul.

18 Capillé, Cauê, and Sophia Psarra. 2014. "Space and Planned Informality: Strong and Weak Programme Categorisation in Public Learning Environments." *A|Z ITU Journal of Architecture* 11 (2): 9–29.

redefine the methods used in the case studies of Medellín, the pilot study has also a value on its own, as it exposes the impact of the organisational changes in public libraries in the use of space. After discussing the key findings brought by the pilot study, the chapter then describes the procedures of analysis for the cases of Medellín. These procedures took into consideration the experiences brought by the pilot study and the discussions carried out in chapter 3.

Chapter 5 – Cases and their spatial structures

This chapter presents the five libraries studied through a description of their architecture, spatial structure and other information gathered from fieldwork. It explains the criteria for their choice and how the architectural, organisational and empirical data was collected. It also explains the ways in which the research addresses the demographical data from other studies and official reports on the same libraries. This part outlines some characteristics of the social context in which these libraries are placed, and the limitations for comparative study. Chapter 5 also discusses challenges faced on the ground and ethical limitations of the field research, particularly in relation to the observation of people's behaviour in space. It also lists and justifies the instruments used in the study. Finally, it details the timeframe of the research, outlining the procedures taken in each stage of the study.

Chapter 6 – Analyses of space and programme

This chapter looks at the five Library-Parks presented in the previous chapter in order to address the *types of Library-Parks in relation to their arrangements of spaces and programmes, and what kinds of patterns of co-inhabitation may be retrieved as implicit in each of these arrangements*. More specifically, it focuses on how particular spatial properties in these buildings can influence the way in which they work as spatial and social environments, and how they accommodate different purposes. In short, it addresses the problem of how to categorise and interpret the Library-Parks considering the arrangements of their spaces and programmes.

The chapter describes the libraries through their system of convex spaces in order to analyse them in terms of topological distribution of each programme and

in terms of differences in integration for groups of programmes. It is found that the five buildings differ significantly from one another, particularly in relation to how they spatially combine their different functions as [i] formal learning facilities, [ii] interactive learning facilities and [iii] extensions of public space. It is found that each of these different arrangements implies affordances of different forms of use, especially if we consider spatial and programmatic constraints to movement and occupation patterns. This is a significant finding precisely because these buildings' main aim is to construct community values through the interactions between visitors engaging in informal co-inhabitation – a construction that is subjected to constraints from architectural arrangement.

Chapter 7 – Analyses of space and social practices

This chapter looks at the five Library-Parks presented in chapter 5 in order to address the research questions: *how are the libraries used? How do the spatial structure and programmatic distribution relate to the patterns of use?* More specifically, it looks at the empirical data collected during fieldwork in each Library-Park, analysing the distribution of activities and the formation of collective patterns based on these distributions. This chapter builds from the previous one, addressing how the described spatial-programmatic conditions affect real use patterns and consequently how they affect the formation of collective values through informal co-inhabitation.

Chapter 7 gradually unfolds the functioning of the Library-Parks through analyses of the distribution of different activities – occupation, movement, interaction and surveillance – and of the formation of co-presence based on these distributions. It is argued that, even if there are no official intentions for social control, the mere presence of staff means that visitors' activities may be observed and socialisation and networks of co-presence affected. This leads to an implicit form of control that can be more pervasive than overt control based on predefined behavioural rules. One of the main topics of this chapter is precisely to address the tensions behind the organisational aims built upon the desire to enable informal co-inhabitation and socialisation and at the same time define institutional rules that discipline society[19].

19 A part of this analysis is published in Journal of Space Syntax (Capillé & Psarra 2016).

The chapter presents how each library distributes these different activities and how behaviours may be institutionalised. In other words, the chapter provides evidence for a discussion on how each library construct codes of civic interaction and behaviour.

Chapter 8 – Discussion and conclusion

This chapter discusses the results from the analyses carried out in chapters 5 and 6, against the theoretical framework built in chapter 2. This chapter summarizes how the research employed a combination of methods as means to overcome gaps in the knowledge about the functioning of public architecture, considering the case of contemporary public libraries. Firstly, it answers the main research questions regarding the formation of spatial cultures in the studied buildings. The arguments underpin the formulation of three general types of public library buildings based on how architecture construct and control specific spatial cultures. In particular, it provides a critical review of the categorisation of 'weakly and strongly programmed buildings' in terms of their social potentials and spatial mechanisms. Secondly, chapter 7 discusses the role of public libraries in constructing and communicating collective values in society. In particular, it formulates how spatial arrangement of public libraries distributes power relations. In this sense, this second section emphasises the main challenges that public libraries face in terms of the design of their spaces towards meeting their recent programmatic transformations. Thirdly, this chapter addresses the limitations of the study and the questions that open for future research.

Chapter 2
Literature Review, Part I:
The social function of public libraries

This chapter reviews the literature on the relationship between architectural space and the social programme of public libraries. Its purpose is to clarify the extent to which previous work has contributed to understanding the problem of organization of space in public libraries and the ways in which it relates to their broad social intentions.

The first part (section 2.1) intends to provide a general introduction to the case of public libraries, focusing on their formation as a building type. This part discusses the main topics that emerge from the literature. These are the extent to which libraries are spatial manifestations of epistemological views of the world; how their educational function is manifested; and how they originally combined open access and social control. In this sense, public libraries are considered to embed power relations through the educational organisation of access to knowledge. The second part of the chapter (section 2.2) reviews literature about the current transformations in public libraries. The internet and the value given to socialisation as a form of learning suggest that libraries are shifting from the organisation of knowledge to the organisation of social relations. This implies therefore that, aside the organisational changes, there is a fundamental shift in how power relations are embedded and manifested in library spaces. In the final part (section 2.3), we shall highlight the relevance of this shift for the case of the Library-Parks of Medellín, and propose how a study on the Library-Parks may clarify some of the gaps in knowledge found in the literature. In this part the main research questions are therefore refined considering the review of the literature in the previous sections.

2.1 Public library as a building type

How did libraries emerge as a building type? This section looks at the main topics that emerged from the literature, grouping authors that discuss similar matters in regards to the formation of the public library as a building type. The aim is to clarify what were the 'traditional' social intentions of public libraries (*why* did they come into being) and how these social intentions were manifested in space and programme.

In a thorough study on the history of libraries, Harris (1999) highlights that what is generally meant as 'public library' in the modern sense of the term is "the general library that is not only publicly owned and tax-supported, but also open to any citizen who desires to use it" (1999, p.149). Harris explains that libraries emerged from the very beginning of writing as a form of communication, which suggests that their function is directly related to the interest to preserve ideas and information, so that they extend beyond the duration of spoken language (Harris 1999, p.3). Aside this general intention, Harris considers that only through the convergence of a number of conditions – such as social, political, and economic – libraries are constructed. In fact, his study is organised in chapters that follow historical periods ('ancient world', 'medieval libraries', 'modern libraries'), presenting various examples of the formation and destruction of important libraries due to variations of prosperity and crisis in one or more of these conditions. One of the most illustrative examples is the Library of Alexandria, which emerged in a period of great abundance of resources from the Hellenic world (4th Century B.C.), and which reached the astonishing mark of 600.000 rolls after several centuries (Harris 1999, pp.44–47). Alexandria became the main academic centre of the classical period, particularly because of the collections that the Library offered. However, the Library was gradually destroyed by numerous civil wars, conquerors and fire, and ceased existing by 645 A.D.. The subsequent historical periods also present similar examples of formation and destruction of important libraries.

In the particular case of public libraries, Harris (1999, pp.149–161) explains that the social, political and economic conditions that give support to their emergence are associated with the development of the bourgeois society. He marks the emergence

of public libraries in the 18th and 19th centuries, suggesting that this emergence was strongly related to the liberal intentions to form a new society based on open access to knowledge, or in his own words:

> *"(...) the emergence of liberal conceptions of democracy assumed that the success of a democratic experiment would depend on the widespread, and enlightened, participation of the citizenry in the decision-making process. It followed, for liberals everywhere, that free and equitable access to information was central to the creation of an enlightened citizenry." (Harris 1999, p.6)*

In addition to providing "free and equitable access to information", public libraries served for a variety of educational and governmental purposes, most of them related to endorsing and reproducing the organisation of knowledge set by the state (Harris 1999, p.148) and to 'improving' the habits of the lower and middle classes (Ibid 1999, p.157). These three aspects – organisation of knowledge, educational function and open access – are in fact the most recurrent topics in the literature on the subject of the emergence of public libraries. Together, as we shall argue, they form what we could call the 'social function' of public libraries. The three following sections review the authors in the light of these topics. In all three sections, the underlying question is: how does the literature see the relationship between social function and space in public libraries?

Public libraries as the spatial organisation of knowledge

This section reviews the argument put forward by many authors that one of the most significant functions of public libraries is to translate a particular classification of knowledge into built form. In other words, public libraries *organise* objects (for example, books) in space based on a predefined conceptual organisation of knowledge. This 'translation' is at the same time an epistemological and social problem. This is because, in organising objects in space, public libraries also organise how public access to these objects is (potentially) realised. This section will focus on the social implications of these 'translations' from conceptual classifications of knowledge into physical organisations of space and public access.

The work of Thomas Markus (1987; 1993) is a good starting point in this regard. In an extensive study on the formation of modern building types (e.g. public libraries, museums, markets, etc.), Markus (1993) outlines the relationships between power, order, classification and function in built environment. He suggests that buildings contain social information through their spatial configuration, or in his terms, "buildings are not primarily art, technical or investment objects but social objects" (1993, p.xix). In the first part of 'Buildings and Power', Markus discusses the problem of the relation of form and function, and the ways in which this relation conveys meanings of power. According to Markus, although the essence of architecture seems to be its 'functional programme' or 'brief'[1], there is no causal relation between form and function (Markus 1993, pp.27–28). This would be the reason why many different programmes seem to take place in very similar forms – and conversely many forms seem to be used for completely different purposes – making the study of typology in architecture a complex task (1993, p.38). He suggests that function is revealed in two different ways: on one hand, the labelling of spaces with "words [that] place the activity into its social context" (1993, p.30) indicate their functions; on the other hand, the subject's experience in space creates a "specific historical narrative" (1993: 28), which 'functions' towards a particular purpose. His analyses utilise space syntax methodology for the understanding of spatial configuration, particularly for producing diagrams that map the clustering of functions in a building. In this way, the narrative and the labelling are mapped through the same diagram[2], which enables to expose how buildings function as 'social objects'.

In the following parts of the book, Markus proposes three different categories of functional types: types which control people directly, types which reproduce knowledge and types which are used for production and exchange. He posits that different theories of knowledge will define different organisations of space (1993, pp.169, 171, 208). Since "knowledge is power" (1993, p.169) and carry political (1993, pp.185, 194, 207–208, 211) and civic (1993, p.183) meanings, by tracing the origins of many functional types related to knowledge – such as libraries, schools and

1 He refers to Frankl (1914) to emphasise the importance of the 'brief' for the understanding of architecture.

2 Markus argues that this diagram of the configuration of the building must be read together with the building historical context for the understanding of how the social relations developed in reality. In fact, the study considers three domains: the building, the texts about the building and the potential experienced subject (1993: 5).

museums – Markus is also tracing the origins of power in such types of buildings and, more importantly, enabling the association with their contemporary evolved correspondents. The relationships that Markus proposes between educational institutions and power relations will be discussed in the section that follows. Here, we will pay closer attention to his analysis of the formation of public libraries (Chapter 7 1993, pp.171–185).

According to Markus, public libraries have the function to collect, organise and provide access to all existing knowledge, becoming both the "archetype of epistemological totality" and the "prototype of museum and art galleries" (Markus 1993, p.172). His analysis suggests that their formation as a building type is informed in many ways by the collegiate and monastic libraries of the 16th and 17th centuries. He explains that public libraries emerged from the collective demand for open access to knowledge. This demand, however, brought a conflict between the educative restriction of certain contents and the diffusion of all literary collection – a conflict that is ultimately expressed in the spaces of public libraries (Markus 1993, p.172). He explains that only individuals who were permitted to access knowledge used the private collegiate and monastic libraries. Once inside, the individuals would have free access to all contents. In other words, these libraries did not need to restrict access to particular contents, making the organisation of books in space become a direct expression of the catalogue that organised these libraries' collections (Figure 2.01). Markus suggests (1993, pp.172–173) that "The University of Leyden library in 1610" (Figure 2.01) is exemplary of the type of library that is not concerned with controlling access to particular contents, but is purely expressing the catalogue in space and providing access to those that are permitted inside the library. In this case, the catalogue organises books into subjects of knowledge (philosophy, theology, medicine, history, etc.). However, Markus explains that the organisation of the catalogue was problematic for many philosophers (e.g. Bacon, Leibniz and Kant), which saw the catalogue (and therefore the space of libraries) as an important expression of the epistemology of scientific knowledge (1993, pp.173–174).

In public libraries, this epistemological problem of the catalogue and its spatial manifestation become crucial. This is because public libraries have to represent a collectively accepted epistemology, which is not always a simple task. The clearest example that illustrates this problem of a public institution having to deal with the

Figure 2.01: Markus suggests (1993, pp.172–173) that "The University of Leyden library in 1610" is exemplary of the type of library that is not concerned with controlling access to particular contents, but is purely expressing the catalogue in space and providing access to those that are permitted inside the library. Image credits: Engraved by Willem Swanenburgh (1610); drawed by Johannes Woudanus (1610). Source: Wikipedia

Figure 2.02: St Genevieve Library, Henri Labrouste, 1850. Source: Wikipedia, author credit: image title "Reading room of the Bibliothèque Sainte-Geneviève, Paris", by Marie-Lan Nguyen.

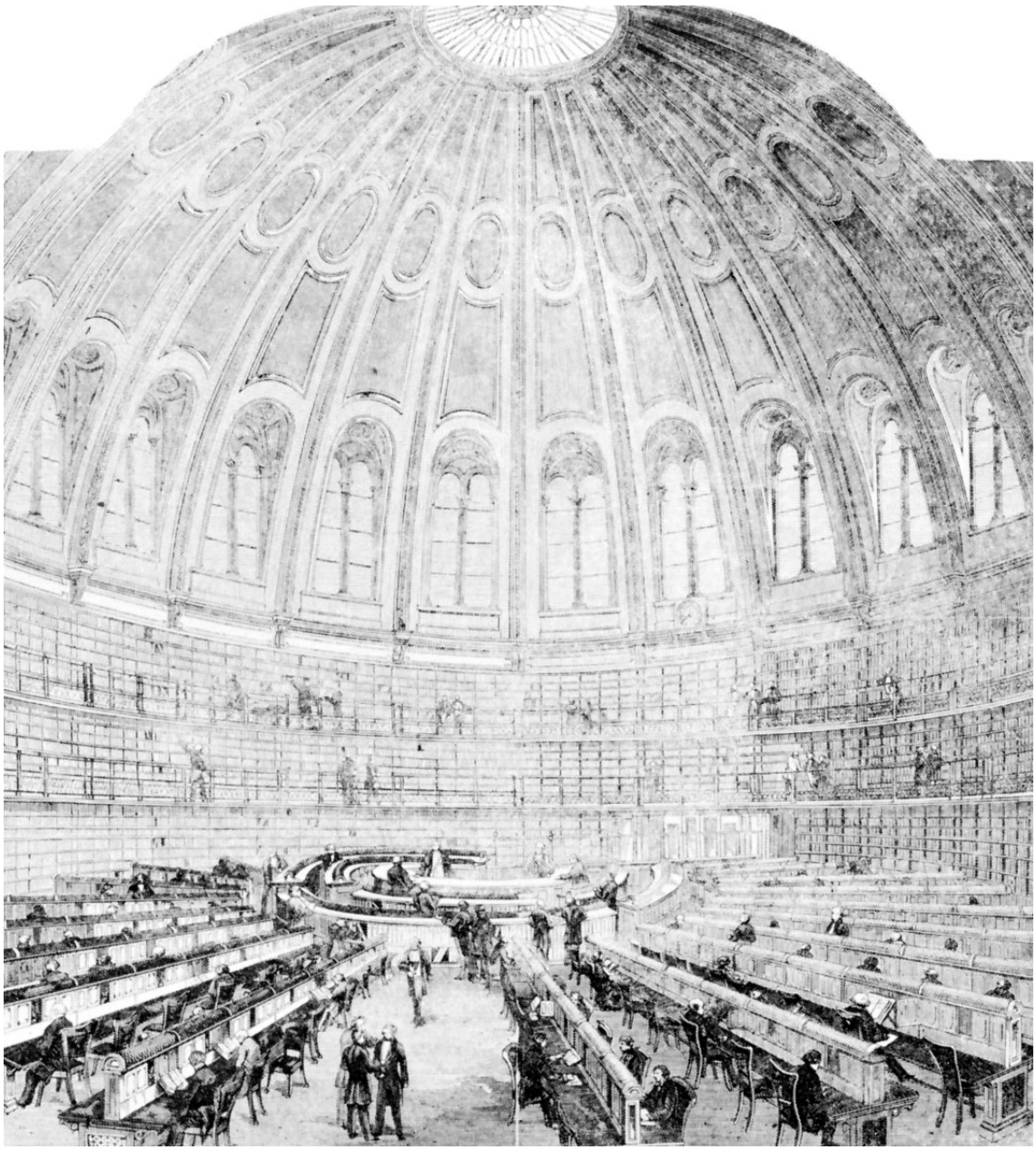


Figure 2.03: Reading room of the British Library. According to Markus (Markus 1993, p.177), visitors were controlled in two main ways: firstly, they had to submit themselves to a hierarchical bureaucracy for requesting a particular book (which was only accessible to the librarians); secondly, they were under intense surveillance in the reading rooms, due to vantage points where the librarians sit. Source: Markus 1993, p.181

classification of science in space comes from the debates on the opening of the Natural History Museum in London, in 1881. The museum was transformed into an arena for the scientific battle between Darwinian evolutionists and adherents of previous theories, making the discussion of the exact placing of some specimen a fundamental problem for the curators (Markus 1993, p.21). In the case of libraries, since books have multi-dimensional relationships they cannot be organized linearly (1993, p.174). Together with these epistemological problems, public libraries emerged in a moment where the number of readers was exponentially growing due to improvements in the printing and distribution of books. These two aspects (the epistemology of science and the increased number of readers) had an impact on library space. In the collegiate and monastic libraries, space was organised by the enfilade of low cabinets that were perpendicular to the wall (so that they could all have access to daylight), as illustrated by Figure 2.01. This scheme evolved to the 'wall shelve system' (Figures 2.02 and 2.03), where the storage space was segregated from visitors, who only had access to the reading spaces (Markus 1993, pp.174–177). In this way, visitors were controlled in two main ways: firstly, they had to submit themselves to a hierarchical bureaucracy for requesting a particular book (which was only accessible to the librarians)[3]; secondly, they were under intense surveillance in the reading rooms, due to vantage points where the librarians sit (Markus 1993, p.177) (Figures 2.02 and 2.03 – St Genevieve and British library).

At this point, it is important to consider Harris' distinction between national libraries and 'community' libraries (1999, p.139). Although both institutions emerge almost at the same time, and share a similar intention in regards to providing access to knowledge through books, they differ in regards to their purpose, size and collection. National libraries have an important role in collecting archives, often rare in nature, so that they preserve the cultural heritage of a nation. They inherited most of their collections from the royal, ecclesiastic, judicial and academic libraries (Harris 1999, p.116). 'Community' or 'neighbourhood' libraries are also publicly accessed, but do not intend to collect archives (although they may have important archives in their collections), but to provide access to what is considered 'good reading' (Harris 1999, p.157). Markus explains (1993, p.183) that the control of reading, despite

3 For instance, the librarian would have the power to deny access certain books to youth and ladies (Markus 1993, p.185).

being against the ideal of free-thinking and open access to scientific knowledge, took place in public libraries to guarantee that controversial materials (religious, political, or philosophical texts) were excluded from access. This was seen as an important measure both to constrain radical ideas to be circulated and to attract the less academic readers to the libraries (Markus 1993, p.183). In addition, Markus emphasises that social class and gender were significant aspects in the formation of these libraries. While the bourgeois gentleman readers segregated themselves to form the Lyceums and Literary Societies, the public library focused in offering access to reading for the working classes and women (Markus 1993, pp.180–183). These libraries would place therefore the 'good and easy reading' (e.g. newspapers, romances) in the most accessible places, so that entering the public library would be seen as a place for leisure and pleasure, or in Markus' words, the "step from the street to the reading room would feel like the step into the pub" (Markus 1993, p.183).

In this sense, by embedding an organisation of knowledge that suits the practice of 'good reading', the public library becomes the expression of an epistemology of science and at the same time of an ideology of social behaviour. This is an argument also put forward by Sophie Forgan (1986; 2005). Investigating the emergence in the 18th century of buildings that had the specific purpose to house scientific activities, Forgan (1986) discusses how the development of science was affected by their architecture. She proposes that buildings "can be viewed as statements" (Forgan 1986, p.91) that embody a particular discourse and culture through their institutional presence, its typology and architectural style (1986, p.92). In particular, she analyses how the architectural elements were used to convey specific messages. For example, the façade often had the function to symbolise stability and respectability (Forgan 1986, p.100) and to make reference to particular historical periods of philosophical importance (1986, p.111). Even their location in the city 'tells' a lot about what they intend to mean, how it should function and who is supposed to use its spaces (Forgan 1986, pp.90–91). In the case of museums, for example, in order to guarantee that they are used in a 'correct way', they are generally located in places of "respectability and acceptance into the ranks of the local bourgeois elite" (Forgan 2005, p.579)[4]. She

4 We will see further when reviewing the work of Bennett (1995) that the locations of museums in the city had also the role to embody the "power to show and tell", which resulted in rhetorically incorporating the people within the rationality of the state (1995, p.87).

argues that, in scientific societies, the shape and the layout of rooms for meetings may provide clues about social hierarchy and the way that this hierarchy was reflected in the structure of potential debates (Forgan 1986, pp.105–106). This hierarchy – which was materialised in space as room divisions, furniture, etc. – implied that scientific knowledge should proceed in a way that maintained social status, a fact that was viewed by scholars as an interference to "the free exchange of information" (Forgan 1986, pp.108, 112). She concludes that:

> *"(...) the buildings of each [research institution] not only form an evolution of a particular type, but can tell us much about the ideology of science as well as its conditions of existence. If we can interpret these buildings, then it is possible to match what the French call 'une architecture parlante' with the developing discourse of science." (Forgan 1986, p.113)*

Forgan highlights that the process of emergence of these building types whose function is to house scientific activities is extremely relevant, as it "is the key moment at which scientific ideas are given material form" (Forgan 2005, p.575). In other words, both Markus and Forgan are concerned specifically with the ways in which social ideas are embedded in built form, or, in Forgan's own words, with the fact that "buildings were, and still are, expressive of ideologies encoded into their structure" (Forgan 2005, p.583). However, they do not address how activities in space may generate forms of culture, which may have an impact on architecture's social function and ideology. Daniel Koch's (2004) work is an example of a study that looks at public libraries with an emphasis on the social meaning that emerges from space "as it is lived" (Koch 2004, pp.5, 29).

Koch suggests that originally a library was a "building which housed books", but it has now shifted its function to become "a place for the storage and the exchange of information" (Koch 2004, p.20). He suggests that traditionally public libraries were associated with a practice of "reverence, silence and devotion [to knowledge]". Referring to Castells' 'information age' and 'network society' (Castells 2010), he posits that now public libraries function for "communication, exchange, (…) and knowledge as produced through human interaction" (Koch 2004, p.76). However, he acknowledges that public libraries are still "embedded with both symbolic meaning and the task to represent knowledge and literacy to the public" (Koch 2004, p.56).

This twofold purpose – to produce knowledge through interaction and to reproduce the idea of knowledge – is what makes public libraries a strong case for the study of "how space (re)produces meaning in society" (Koch 2004, p.56).

Koch looks at three Swedish contemporary public libraries in order to address this question. The methodology consists basically in the evaluation of the production and reproduction of meaning through three 'filters', as he terms: 'the distribution of space', 'the distribution in space' and 'the distribution through space' (Koch 2004, pp.29–31, 57). The first filter, 'the distribution of space', is the analysis of the spatial system of the buildings through 'a hermeneutic process' (Koch 2004, p.161) which aims to understand what signs are related to the ordering of space. This analysis focuses on the relation of the main purpose of the building to its spatial system, primarily represented through the justified graph of convex spaces system[5]. Through this method, a series of logical arguments can be suggested in order to understand how the distribution of the spaces of the library already represents an idea of a structure of knowledge. The second filter, 'the distribution in space', evaluates the building through an 'archaeological process' (Koch 2004, p.162): an investigation of the distribution of functions, things, contents, and people in the spatial system. This distribution adds another idea of knowledge. According to Koch, this arrangement of things in space informs, for instance, how the building structures literature subjects and different reading spaces, and how this is related to an understanding of books as the source of knowledge, or the representation of thereof, and also what kind of learning process is the building suggesting or avoiding (Koch 2004, pp.121–124, 135). The third filter – the distribution through space – evaluates how meaning is produced from how people use space. This is analysed through observations on site of visitors' behaviours. These observations inform how each building creates different patterns of movement, co-presence, encounters, interactions and privacy, which conveys the idea of different types of learning process (from individual to more collective arrangements). In conclusion, Koch shows that these three types of distribution inform how each building organises knowledge and social relations. The spaces, objects and uses are all seen as *artefacts* whose interrelation provide a clue about the social function of each building.

5 Which is a method very similar to the one utilised by Markus (1993), as we have seen above. The terms 'justified graph' and 'convex space system' will be explained in more detail in Chapter 3.

It is interesting to compare these ideas with the ones brought by Alberto Manguel (2006). While the previous authors (Markus, Forgan and Koch) are interested in public libraries as material artefacts, Manguel focuses on how libraries are constructed in the mind. For him, libraries express our desire for unity and order in a world of chaos (Manguel 2006, pp.23–24), and therefore a certain vision of the world is imposed on the reader when entering a library (2006, p.47). In this sense, he highlights that public libraries carry many problems, from the "illusion of freedom of speech" (2006, p.31) to the problem of organisation of books in the shelves (2006, p.41). While private libraries can express individuality and taste, public libraries on the other hand should expose a collectively accepted code that can be understood by every user (Manguel 2006, p.41). However, for Manguel this is an impossible task, as "ultimately, every organisation is arbitrary" (2006, p.43) and has various intrinsic flaws. He illustrates this problem by a variety of examples (2006, pp.50–63), which start from the fact that books cannot fit in one category only. This results in the fact that both choosing a particular classification and choosing where to place the books are arbitrary tasks[6]. Similar to Markus, Manguel highlights that the library catalogue embeds this problem of classification. Manguel suggests, nevertheless, that today electronic catalogues can serve to bridge this problem, as they can incorporate many systems of classification in one device (2006, p.41). Markus also recognises this capacity of electronic organisation, but he argues that "as long as books are on shelves, the issue remains" (1993, p.174). In order to avoid the catalogue, Manguel allegorically proposes:

> *"Some nights I dream of an entirely anonymous library in which books have no title and boast no author, forming a continuous narrative stream in which all genres, all styles, all stories converge, and all protagonists and all locations are unidentified, a stream to which I can dip at any point of its course."* (Manguel 2006, p.63)

This allegoric library exists in Manguel's mind only, in other words, it exposes his individual freedom in regards to the ordering of knowledge and literature.

6 For example, he proposes the problem: "If I place Tomas Eloy Martinez's 'Santa Evita' in my section on Argentinian history do I diminish the book's literary value? If I place it under fiction in Spanish am I diminishing its historical accuracy?" (Manguel 2006, p.44) This problem is similar to Markus suggestion that books have multi-dimensional relationships, and therefore cannot be organized linearly (1993, p.174).

However, as we shall discuss later in more depth when considering Arendt's theories (1958)[7], the world of 'men' – and not 'man' – is a shared one. This means that collective life and the public realm implies 'appearance' in between others (which is something impossible for a library constructed in one's mind): Arendt considers that when men are "deprived of seeing and hearing others, of being seen and being heard by them (…) they are all imprisoned in the subjectivity of their own singular experience, which does not cease to be singular if the same experience is multiplied innumerable times" (Arendt 1998, p.58). In order to appear to others, men (in plural) require space in between them: what Arendt calls 'space of appearance' (Arendt 1998, p.199). In other words, when in his own mind, Manguel can construct a library that frees the literature and the subject (himself) from any organisation. However, we can consider that as long as libraries are part of the public realm (that is, part of the shared world of men), the problem of organisation of spaces, contents and people remains.

To conclude this section, what becomes clear from these studies is that, by embedding an epistemology of knowledge and science into its architecture, public libraries organise social relations according to this scientific structure. This organisation makes visitors encounter peers that share the same interest and literacy by means of spatial narratives where some literary topics are separated from others. By contrast, this organisation also constructs the idea of 'the different' by means of spatial arrangement: those who do not share the same interests and knowledge are spatially segregated. Koch (2004, p.129) reminds that this segregation is often motivated by utilitarian reasons, for example in the case of children's library (to protect children), in regards to books for people with lower reading capability (to facilitate their accessibility) or in regards to separating books by language to address an immigrant population (to promote their cultural background). However, he suggests that even in those cases this separation implies that these visitors are excluded from the general public (Koch 2004, p.129). In fact, as it will become even more evident when we review Bennett's work (1995), these buildings construct the idea of 'the exotic other' (Bennett 1995, p.79), which facilitates the exercise of power over these 'excluded' populations. Bennett explains that since these buildings are endorsed by a scientific rationale, they suggest the idea of progress in between different topics, which imply in categories of visitors, forming therefore a 'taxonomy of social relations' (1995, pp.79,

7 The first edition was published in 1958. The edition I accessed was published in 1998.

82). We shall see in the section that follows that this taxonomy, together with other practices, *educate* potential visitors by means of their experience in space. It should be emphasised, therefore, that it educates both how to navigate in the taxonomy of literary topics (epistemology of science) and the taxonomy of social relations.

Public libraries as educational institutions

Many of the early public libraries were built in public school buildings, so as to emphasise their educational role (Harris 1999, p.150). This experience was not successful due to the fact that adults did not accept having to go to a school in order to access books (1999 ibid.). Therefore, other municipal buildings became hosts of public libraries, such as court houses and town halls (1999 ibid.). Harris does not extend the study towards addressing what was the impact that these direct spatial relationships with other functions had in the formation of public libraries. However, he posits that these relationships with other buildings carried a clear message of state-led educational agenda (Harris 1999, pp.150–153). The main function of public libraries would be not only to provide open access to reading collections, but most importantly to assist in the selection of reading. This becomes even more clear when we consider that another type of library was very popular in the same period that public libraries emerged: the 'commercial circulating library' (Harris 1999, p.152). These were private institutions that were similar to public libraries in many aspects, as they provided access to large collections of reading material by means of cheap subscriptions. However, as Harris highlights (1999, p.152), these libraries were famous for their collections of romantic and erotic novels, which responded to the interests of middle and lower classes. These readings were considered by the conservative sectors of society as potential threats to the moral of the masses (1999 ibid.). Many resolutions were made to reduce their accessibility and to educate the middle and lower classes for 'better' reading habits – and public libraries were in the centre of this educational mission[8] (Harris 1999, p.157). In this regard, it is interesting to consider Markus' ideas on the political value of literacy:

8 Forgan (1986; 2003; 2005), Markus (1993) and Bennett (1995) remind that museums also played an important role in this regard. Forgan (1986, p.96) explains that, by the eighteenth century, museums worked as "'school for adults', where they could learn from properly arranged exhibits".

> *"Literacy is both a tool for the extension of knowledge and for domination. Anthropologists have noted how writing and reading are ways for alienating land from non-writers through law courts and bureaucracies. Wills, testimonies, written law and property deeds create asymmetries of power and the spaces for producing, storing and using them become privileged." (Markus 1993, p.172)*

In other words, considering literacy as a tool for domination and power as Markus suggests, public libraries may be considered to play an important political role. This is related to the fact that ideally, in a democratic society made of equals – which is often indicated by the literature as the rhetoric precondition for the emergence of public libraries (e.g. Forgan 1986; Markus 1993; Harris 1999) – , all individuals would have an equal access to knowledge and information. In this way, education would produce 'symmetry of power' (as far as literacy is concerned). However, I shall briefly anticipate the argument that will be constructed in this section and highlight that the literature indicates that very often this 'education' is not interested in creating symmetry of power by empowering each individual. Rather, it is interested in producing almost the opposite effect: that is, to 'normalise' behaviours so that power is dissipated into the immaterial idea of the state.

To construct this argument, it is important to consider Bennett's work on the historical formation of the museum as a building type (1990; 1995) and on the relationship between culture and power (1992). For Bennett (1995, p.2), public libraries are similar to museums in many aspects, particularly in their shared intention to construct order out of chaos. Both are institutions interested with the idea of "show and tell" (1995, p.75), that is, to make knowledge visible and organised in a particular classification, or narrative (ibid.). In the case of museums, the history of their formation is related to the gradual opening of private collections of the '*cabinets des curieux*' to the public (1995, p.73).

The intention to "show" knowledge, or to show that one 'possesses' knowledge (because one possesses the artefacts to which knowledge is related), is associated with the need for the state to promote itself as the principal educator of society. Even the locations of museums in the city were associated with this need. According to Bennett, museums were "typically located at the centre of cities where they stood as embodiments, both material and symbolic, of a power to 'show and tell' which, in

being deployed in a newly constituted open and public space, sought rhetorically to incorporate the people within the process of the state" (1995, p.87). In addition, he formulates that the museums' intention to "tell a narrative" or to expose a "reordering [of] things [also] needs to be seen as an event that was simultaneously epistemic and governmental" (1995, p.33). In order to formulate this argument, Bennett reviews Foucault's and Gramsci's theories of the relationship between state, power and culture. For Bennett, Foucault's theories offer both a critical position in relation to the 'episteme'[9] that underlies the construction of public museums in the eighteenth and nineteenth centuries and a theoretical proposition of the techniques that allow for the control of the masses in modern times. In addition, Bennett sees the work of Gramsci as essential to the study of how the bourgeoisie performed cultural control over the popular classes, particularly through the conceptualisation of the state as an educator (1995, p.91). Bennett (1995, p.97) argues that, in principle, museums were representatives of ideologies of a democratic society, that is, of a society made of equally powerful individuals. In reality, however, he explains that:

> *"(...) the public museum was hijacked by all sorts of particular social ideologies: [for example,] it was sexist in the gendered patterns of its exclusions, racist in its assignation of the aboriginal populations of conquered territories to the lowest rungs of human evolution, and bourgeois in the respect that it was clearly articulated to bourgeois rhetoric of progress."* (Bennett 1995, p.97)

These "particular social ideologies" could be synthesised in a singular educational objective: museums served as instruments for 'social reform' of the working classes and its public manners (1995, pp.31, 100, 109). They perform this reformation by means of a system of 'visibilities and invisibilities' of objects and people, which would be organised in a way that both (objects and people) would "offer a glimpse of something beyond [themselves]" (1995, p.35). For example, in the case of objects in a natural history collection, the visible collection offers a glimpse of the order of the entire nature (1995, p.35). In the case of people, museums had the capacity to construct an 'episteme' where social relations are part of a taxonomy of

9 Foucault uses the term 'episteme' to refer to the social and historical conditions that ground a particular system of knowledge in a given period and society. The term is mostly developed through the work "The order of things: an archaeology of the human sciences" (first published in 1966 in French "Les mots and les choses"), which assesses the ways in which people accept the taxonomies of an epoch without questioning their arbitrariness.

progress which spatially organises popular culture in relation to high-culture. Forgan (2005, p.582) explains that, although there were a few cases in which the taxonomy was questioned (as for example in the case of the Natural History Museum of London, as we mentioned earlier), it generally remained taken for granted. She formulates that this is present in the very interest to expose scientific knowledge in a way to mesmerise the public with wonder and impact through monumental architectures and design of the displays. She suggests that this intention to create wonder and impact ends by establishing the idea that visitors are spectators of culture, and not producers. For example, Bennett (1995, p.110) highlights that generally it was popular culture – and not high culture – that received a special display location as 'the picturesque'. He references the concept of 'the picturesque' from Gramsci's (1971) critique to the representation of the cultures of subordinate social classes not in their real complexity. In this way, the museum promotes "a general acceptance of ruling-class cultural authority" (1995, p.109), since high-culture becomes the accepted ordered world and popular culture, by opposition, the "exotic primitive other" which is not (or should not be) part of this same world. It should be noted that this exclusion is performed not by detaching popular culture from the body of existing knowledge, but by placing this culture as hierarchically and evolutionary inferior to ruling-class culture (Bennett 1995, p.98 citing Gramsci 1971). In short, this 'spatial hierarchy of cultures' (1995, pp.79, 109–110) educates public manners by means of implicitly constructing ideas of sameness and otherness (1995, pp.82, 109–110). Moreover, implicit in these ideas lies the hegemony and the power of the state as the author of this taxonomy of culture and behaviour.

The work of Bernstein (2003) on schools[10] deserves attention in this regard, since it illustrates the difference between educational institutions that apply explicit forms of control and others that use implicit ones. He formulates that three message systems construct the formal educational knowledge: curriculum, pedagogy and evaluation. "*Curriculum* defines what counts as valid knowledge, *pedagogy* defines what counts as a valid transmission of knowledge, and *evaluation* defines what counts as a valid realisation of this knowledge on the part of the taught" (2003, p.85).

10 It is important to highlight that, different from the authors revised so far, Bernstein's work is not about the formation of schools as a buildings type, but with their social function in (his) contemporary society (1960-80s).

Bernstein suggests two kinds of curriculum: one of a 'collection type' and another of an 'integrated type'. The 'collection type' refers to the curriculum with strong abstract boundaries between educational contents, whereas the 'integration type' refers to weak boundaries between these contents. In the first, knowledge is strongly classified into specific subjects, while on the second it is weakly classified (2003, pp.83–88). 'Classification' therefore refers to the variation of strength of abstract definition of boundaries between contents. In relation to the context for pedagogical transmission, Bernstein explains that it can be strongly or weakly defined by boundaries that frame the types of interfaces between teachers and taught. The variations of strength of this framing combined with variations of strength of classification of contents construct completely different social orders. Strong classification and framing construct social relations under the basis of 'obedience' to an explicit social order (Bernstein 2003, p.98). On the other hand, weakly classification and framing construct social orders through the implicit requirement of overt participation of individuals in social practices, which thereafter imply a more intensive and perhaps a more penetrating form of embodiment of social rules (Bernstein 2003, pp.107–109). In other words, the weaker the degree of framing and classification of the pedagogical practice is, the more implicit is the form of social control.

These ideas become even more interesting when we consider how Bernstein sees their relationship to space. This relationship is evident in an essay where he allegorically proposes four kinds of lavatories and the messages that they convey for potential users (2003, pp.142–145). The first type of lavatory is a neatly organised one, where white, cleared walls and objects put in precise locations offer little doubt of what is that space for. From the second to the fourth lavatory, Bernstein suggests the gradual addition of furniture and wall decoration so as to include more possibilities of use – up to a point that one may use the space of the fourth lavatory for a variety of activities (e.g. reading, exercise, etc.). He suggests that these lavatories produce quite different outcomes in regards to social control. The first lavatory is governed by a rule of "leave space as you found it" (2003, p.144), meaning that a potential user should not violate space with its own personality. In short, this space unwelcomes participation. On the other hand, the forth lavatory welcomes participation (its rule could be phrased as "do your own thing" (2003, p.144)), and through this welcoming it makes possible to trace people's activities in space, as the next users will have

clues of the previous use (e.g. a particular magazine may be on top of the others). He sees that in this lavatory, new combinations of social ideas could be formed, as this environment encourages one to be spontaneous. Bernstein concludes that the first type of lavatory conserves traditionally established social relations (2003, p.145), while the fourth supports the generation of individuality (at the cost of being under surveillance). It is noteworthy that the rules ("leave space as you found it" and "do your own thing") are conveyed by nothing else but the disposition of objects that are put together/apart in space. In other words, for Bernstein, space carries messages in a 'non-discursive way': it embeds a particular 'classification', that is, a particular structure of relationships between contents and its users assimilate this structure (2003, p.143).

These ideas about educational transmission are valuable for the case of public libraries. They show that even when the organisation of space intends to produce symmetry of power by empowering each individual (which is the educational rhetoric of public libraries and which may be associated with Bernstein's allegorical rule 'do your own thing'), it facilitates the exercise of surveillance of each one's individuality, which may work as an even more pervasive form of control in comparison with authoritarian forms. Indeed, Bennett (1992) explains that both authoritarian regimes and democratic governments use culture as means of reinstating their power. Their main difference lies in the fact that the former does so via spectacle and segregation, while the latter works in an opposite direction, that is, via ideologies of everyday behaviour and integration of all cultures into the same rhetoric of knowledge (as we have discussed so far).

In the beginning of this section we saw that public libraries were originally linked to school buildings. However, the open access in public libraries and museums make them educational buildings that work in significantly different ways in relation to schools, which function through restricted access. Indeed, Forgan (1986, p.96) explains that, by the eighteenth century, museums worked as "'school for adults', where they could learn *from properly arranged exhibits*" (emphasis added). In other words, for public libraries and museums to educate the public they need to arrange objects and people. The arrangement of objects follows the epistemology of science (discussed in the previous section) which, as we have seen, endorses the power of the state to organise the world. The arrangement of people in space is related to the

rhetoric of democratic and open access to knowledge, but also to the social reform of public manners. This contradiction is evident in the fact that their spaces were highly controlled by rules of good behaviour, while at the same time allowing a free movement that resembled "the relaxed form of urban strolling associated with the figure of the '*flâneur*'" (Bennett 1995, p.186). In other words, it is clear that in order to fully understand the educational function of public libraries and museums it is important to consider the ways in which they work as extensions of urban public space, that is, how they organise public access. This topic will be reviewed in the next section.

Public libraries as open access and social control

How did public libraries combine open access and social control? Forgan explains that, in the case of local scientific societies, access was controlled and sometimes even a fee was charged (1986, p.96). In the case of public museums, some of them initially charged entrance fees in order to control the public due to a fear that museum space would be transformed into a "unruly and riotous mob" (Bennett 1995, pp.70–71). Harris (1999, p.112) explains that libraries were associated with religious and governmental buildings until the beginning of the 16th century. In other words, only from the Renaissance onwards libraries are erected as separated buildings (Harris 1999, p.113). Therefore, if until the Renaissance libraries were controlled by the institutions that house them, after this period they had to establish a system of access and control that was related to their own functioning. The profession of librarianship – which emerged at the beginning of the Renaissance, particularly due to the increased number of printed volumes brought by the invention of the printing – is highly associated with the system of control in public libraries (Harris 1999, p.127).

Koch suggests that the presence of staff in public libraries presents the "problem of 'providing a service' versus 'exercising control'" (Koch 2004, p.131), particularly due to the "strategic points" where information desks are located. He sees that this fact emphasises the "complex relation between freedom, service, openness and control" (Koch 2004, p.132) that public libraries embed. Indeed, in the formation of public libraries, librarians had the power to deny access to reading that was considered

inappropriate for certain types of people, for example women and youth (Harris 1999, p.157). However, as we shall see in this section, librarians were not the only actors that performed control of the use of public libraries. It will become evident that the visitors themselves are in fact the ones that exercise more control over others.

In this regard, it is relevant to look at Bennett's arguments on the 'political rationality'[11] of the museum. He formulates that museums embody a fundamental contradiction: they represent universal access and equality, but in reality they work as instruments to differentiate individuals in relations to class and culture and educate public manners (1995, pp.90–91; 1990). According to Bennett, the techniques to control the behaviours of the public in museums were developed in the eighteenth and nineteenth centuries, and could be synthesised and exemplified by the Crystal Palace:

> *"(...) first, the use of new materials (cast-iron and sheet glass) to permit the enclosure and illumination of large spaces; second, the clearing of exhibits to the sides and centres of display areas, thus allowing clear passageways for the transit of the public, and breaking that public up from a disaggregated mass into an orderly flow; and, third, the provision of elevated vantage points in the form of galleries which, in allowing the public to watch over itself, incorporated the principle of self-surveillance and hence self-regulation into museum architecture."* (Bennett 1995, p.101)

These three techniques produce, in this way, "a space of 'supervised conformity'", that is, "a context in which new forms of behaviour might, in being internalised, become self-acting imperatives" (1995, p.100). Their ultimate intention was to avoid the formation of a riotous crowd from an assembly of people (1995, p.55). Bennett explains that originally museums had staff members that worked as 'inspectors' of order, sometimes even guiding the tours (1995, pp.52–55). However, they rapidly evolved to techniques that encouraged public to watch over themselves. In other words, without the need for staff to work as 'inspectors of order', museums could be producing social control. In this regard, Bennett makes reference to Foucault and sees that museums produce very similar results to those of the prison. As Foucault's oeuvre suggests, the prison embeds technologies of power that produce the disciplinary control of individuals.

11 Bennett explains that Foucault uses this term to designate the 'hidden' political reasons that lie in the frequent mismatch between a given rhetoric of governance and the modes of its functioning (Bennett 1995, p.90).

Foucault offers an account of different types of social control – from explicit to implicit ones (Foucault 1975; 1976, pp.175–211; 1991; 1994). Studying the disciplinary frameworks of prisons, Foucault (1991)[12] formulates that the transition from public torture to the confinement of the prison as a punishment of a crime underpins a subtle tactic of social control. He argues that this transition took place during the eighteenth and nineteenth centuries, and it is clear in the emergence of building typologies of this period, such as factories, schools, prisons, hospitals and barracks, all of which resemble each other, presenting different modalities of this 'new' form of control[13]. The 'disciplines', as he names it, is the set of technologies of social control that act through transforming the body of the person subjected to control into a docile, efficient (economic) and useful social force (1991, p.138). Foucault suggests that the 'disciplines' result in the "politically economic (…) ordering of human multiplicities" (1991, p.218)[14]. He uses a variety of historical examples[15] to support his arguments of how this "architecture that would operate to transform individuals" (1991, p.172) actually performs such transformation through the system of social and spatial relations.

One of the most important examples is the prison, which "marks the institutionalisation of the power to punish" (Foucault 1991, p.130). The transition in penal technology – from the scaffold to the penitentiary – exposes an important change in the character of justice itself (1991, p.227). In particular, the concern introduced by the penitentiary system "to know" the criminal and be able to alter him (1991, pp.143, 172) is fundamentally different to the idea of punishment of the body of criminals by means of torture. The prison functions as an "apparatus of knowledge" (1991, p.126) that allows for the state to make individuals "work properly" (1991, p.11). In fact,

12 It is cited the English version of the original publication of "*Surveiller et punir*" (Foucault 1975) in order to make sure that the translations are consistent. The original publication was used in order to verify some nuances in some of the concepts outlined by Foucault.

13 Bogard (1991) reminds that "discipline, for Foucault, cannot be identified with any particular institution. (…) But if Foucault refers to the prison, it is always in relation to prior concerns: how imprisonment came to be taken in the 19th century as the ideal means for punishing infractions in society; how strategic forms of knowledge developed around and rationalized this procedure; how the arbitrary power to punish invested in the sovereign ruler prior to the 18th century was gradually transformed into a penitentiary system with its own unique forms of coercion."

14 In "The History of Sexuality" (1976, pp.175–211), Foucault outlines the concept of 'bio-power': while the 'disciplines' may be seen as power over the individual body, 'bio-power' can be understood as the extension of this power for the administration of a population (Foucault 1976, p.183; Bogard 1991).

15 E.g.: the detailed description of the Panopticon; the spatial organisation of military barracks; the time-table of monasteries; and the distribution of students in schools.

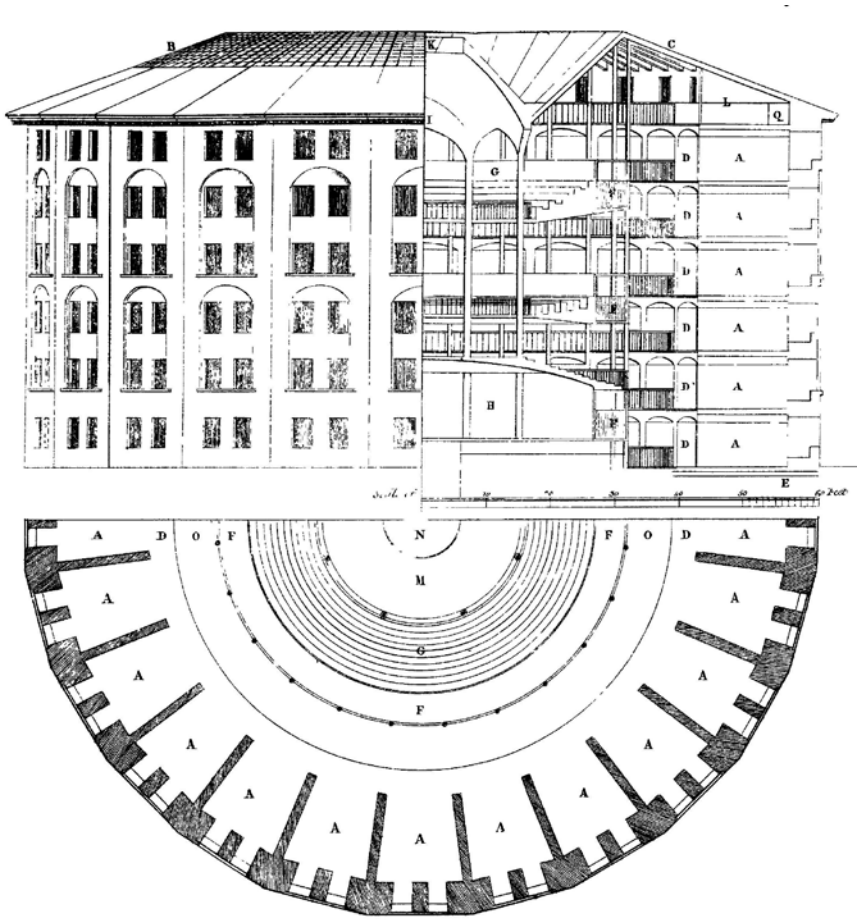


Figure 2.04: Elevation, section and plan of Jeremy Bentham's Panopticon penitentiary, drawn by Willey Reveley, 1791. (Source: Bowring 1843, p.172)

one of the prison's most important concerns was to guarantee that individuals lived according to the economic imperatives of society (1991, p.121). For Foucault, the techniques that the prison utilises to produce these 'useful, productive and docile' individuals are of great interest, as they can be seen as an attempt to produce the automatic functioning of power by the most economic means. Foucault describes and discusses many techniques utilised by the prison, for instance, the isolation of individuals from society, their subdivision in cells, and the strict timetable that governed their action. Among the tactics that he outlines, 'constant surveillance' is of particular relevance to the present work, since it is the most efficient technique as it would be always operating on the body by the minimal effort (politically discreet) (Foucault 1991, p.218). 'Constant surveillance' acts on the body of the prisoners through the control of their minds. In other words, since they know they are being seen, they themselves 'correct' their actions. Foucault elaborates the idea of constant

surveillance from the asymmetry of 'seeing versus being seen' that was developed in the Panoptic prisons (1991, pp.200–209)[16]. The Panoptic scheme (Figure 2.04) allows for the presence of observers to be even unnecessary, since the inmates cannot tell when and whether they are being observed (1991, p.201). Indeed, Foucault sees that the prison exposes the techniques that assure the automatic functioning of power in the subjects' minds.

It is important to bring at this point Baudrillard's (1990) critique to Foucault's view of power as an element that exists over individuals before their very existence. For Baudrillard, "power will never do it by itself" (1990, p.49), but Foucault's texts imply the "illusion of power" as a self-driving force (ibid.). Foucault's interview conducted by Rabinow (1994, pp.349–364) may be seen as a reaction to this critique[17]. In order to make his point, Foucault (1994) brings the element of space as an important factor in the manifestation of power. He argues that although "space is fundamental in any exercise of power" (1994, p.361), this relation still relies on each person's (or each group's) practice of power/liberty (1994, p.354). In other words, Foucault considers that space cannot guarantee the exercise of power/liberty, but can give support for them. To illustrate his thoughts, he utilises the example of the Familistère, by Jean-Babtiste Godin in Guise (1859). Foucault observes that, despite the Familistère being built "for the freedom of people", functioning as a "rather important sign and instrument of autonomy for a group of workers", "no one could enter or leave the place without being seen by everyone – an aspect of the architecture that could be totally oppressive" (Foucault 1994, p.355). However, this oppression would only happen "if people were prepared to use their own presence in order to watch over others" (ibid). However, Foucault notes that although no project can succeed positively for the exercise of liberty, space can succeed in doing the opposite, that is, in constraining liberty. He refers to the fact that slums prevent the exercise of ones rights (1994, p.355), arguing that this is because it is not possible to "dissociate the effective practice of freedom by people, the practice of social relations, and the spatial distributions in which they find

16 Foucault suggests that "the Panopticon is a machine for dissociating the see/being seen dyad: in the peripheral ring, one is totally seen, without ever seeing; in the central tower, one sees everything without ever being seen" (Foucault 1991, pp.201–202). See the work of Steadman (2012; 2014) for a detailed analysis and discussion on this supposed asymmetry and its function. In particular, Steadman (2014) argues that the Panopticon failed to deliver the disciplinary result that it advertised, being substituted by the radial prison layout.

17 Baudrillard critique was first published in 1979 and Foucault's interview to Rabinow was originally published in 1982.

themselves" (1994, p.356). In other words, Foucault understands that only through the 'convergence' of the three aspects – the political practice, the social relations and the spatial distribution – a condition of liberty is created[18]. Moreover, Foucault sees that built form offers a particular quality for the practice of power. Its continuity in framing everyday life according to a social order. 'Routine' practice, rather than 'eventual' practice is one of the main factors that differentiate the old legal system of punishment to the current system of discipline and surveillance (Foucault 1991).

However, returning to the case of museums, Bennett (1990, pp.39–41; 1995, pp.89–95) argues that although they produce disciplinary control (and in this sense working towards similar objectives as prisons), they do it by means that are significantly different to the ones used in prisons. In fact, he sees that museums can be considered almost as the opposite[19] face of prisons (1995, p.88). On the one hand, prisons produced docility and obedience through the confinement and restriction of individuals' movement and sight (Foucault 1991; Bennett 1995, p.94). On the other hand, museums produced the same effects by the opposite means, this is, by increasing permeability and sight of individuals in a way to distribute the power to control into the public domain (Bennett 1995, pp.73, 94). In fact, for Bennett the history of the formation of museums "is not, then, a history of confinement but one of the opening up of objects to more public contexts of inspection and visibility" (Bennett 1995, p.73). In this sense, through its open (but regulated) access, museums form a public which is "inscribed in new relations of sight and vision", and which knows how to use this visibility to control others (Bennett 1995, p.73). In short, the museum rendered society self-regulated by means of self-watching, allowing for the ideals of constant surveillance to be put in practice (Bennett 1995, p.69). By providing open access to the nature, history and culture of Man, the museum (and the public library) provided a 'symbolic open access' for society to know itself.

18 Foucault is often criticised for being vague when elaborating the nature of resistance to modes of social control (Lotringer 2007, p.15; Baudrillard 2007, p.48).

19 Bennett explains that he is not interested in producing a dichotomy where prisons are the opposite of museums. Rather, he sees that these two institutions formed a continuum in the exercise of disciplinary power, which is a view similar to Collier's (Collier 2009) proposition that Foucault's theories of power should be seen "topologically" (that is, "interrelated" instead of "in absolutes").

Public libraries and power relations in space, programme and use

It became clear from the previous sections that it was not only the symbolic access that allowed for the reformation of the masses in public libraries and museums, but also the symbolic (and actual) *restrictions* of accesses and actions. In this section, we shall organise the restrictions of access into three main categories or types, as seen from the literature: space, programme and use. Each one of these types of restrictions organises access between different people, conveying and producing power relations.

Space works as an evident source of restriction. For most authors, if not for all of them, public libraries' spaces give materiality to social hierarchies and epistemologies of science, shaping their potential use according to these ordering schemes. It became evident that, in doing so, public libraries endorse the power of the bourgeois state. This is done through the position of scientific subjects to construct a particular narrative (Bennett 1995; Harris 1999), through their architectural decorations and furniture elements that carry symbolic messages of hierarchy (Forgan 1986), and through the segregation of access to particular subjects that may foster political awareness (Markus 1993; Harris 1999; Koch 2004). In short, public libraries' spaces *embed* power relations. It also became evident that they *transmit* these power relations mainly through the presence of people in space, so as to organise and educate them. This is evident in Markus' formulation that buildings produce two opposed kinds of social relations: of power and bonds, both "made concrete through bodies in space" (1993, p.25). He explains that the mechanisms that produce power are not the same as those that produce bond (1993: 25, 38). Buildings produce 'power relations' by partitioning spaces, restricting choices, making some spaces less accessible or more segregated than others, in order to "control interfaces between people and between them and objects such as museums exhibits" (Markus 1993, p.23). In opposition, buildings produce 'bond relations' through linking spaces, so as to allow communication and encourage encounters between individuals or groups. However, Markus explains that the interrelation between links (accesses) and partitions (restrictions) is often complex and implies many possibilities of distribution of bonds and power relations. I discuss this topic in more detail in the next chapter, where the theories of space syntax – which are the ones that give support to Markus' formulation – will shed light into how one may systematically analyse spatial configuration. Here, what is

noteworthy is the interrelationship between spatial arrangement and use of space in regards to the formation of "power" and "bonds" relations.

Programme is a fundamental aspect in this space-use relationship. The literature suggests that originally museums and public libraries controlled use through guided visits (Bennett 1995), restrictions to particular programmed activities (e.g. meeting rooms) (Forgan 1986; Harris 1999) and rules of conduct (Forgan 1986; Bennett 1995). A well known author that discusses the control of use in space through programme is Bernard Tschumi (1996), whose theories I shall review briefly in order to advance this section's argument. Although Tschumi does not discuss public libraries or museums, his explicit argument that programme constrains the freedom of use of space might help us advance the understanding of the complex interrelation between power and social practices in public educational environments. For Tschumi, the possibility of architecture to prevent or allow use represents what he calls "spatial torture": "the symbolic or physical violence of buildings on users" (1996, p.124). He argues that this 'torture' starts with the purification of "the original, spontaneous interaction of the body with a space" into the idea of "ritual: (...) a near-frozen relationship between action and space, (instituting) a new order after the disorder of the original event" (1996, p.126). For him, 'programme' is this 'purification' of use into a 'ritual'. Through the concept of 'violence of architecture' – "a metaphor for the intensity of the relationship between individuals and their surrounding spaces" (Tschumi 1996, p.122) – he defends an architecture that would free individuals from the control of the ritual of programme. According to Tschumi, the built environment can either act for programme, or against programme. He suggests that spatial sequence and programme are distinct and independent entities, but can be strongly related to each other. He defines programme as "any organised repetitions of events, once announced in advance, [that is,] a descriptive notice of a formal series of proceedings" (Tschumi 1996, p.127). He then proposes three main categories for the interaction between programme and spatial sequence: 'indifference', 'reciprocity' and 'conflict' (1996, p.159). 'Indifference' refers to a relation where "sequence of events and sequence of spaces [are] largely independent of one another". 'Reciprocity' refers to a relation where sequence of spaces and sequence of events "conditions each others existence". 'Conflict' refers to a relation where each sequence "constantly transgresses the other's internal logic" (Tschumi 1996, pp.159–160). Tschumi then defends an architecture

for 'conflict', that would neutralise the 'violence of architecture' and free individuals from power relations.

Considering the many synonyms that Tschumi gives to the idea of 'programme' (e.g. 'function', 'sequence of events', 'ritual', etc.), and the many ways in which he uses these terms, his writing can sometimes be unclear and complicated. Nevertheless, it is clear that for him programme is essential for the control of social practices in space. However, the literature suggests that, since their opening, public libraries and museums have gradually reduced their programmatic control over activities to allow a free movement in space. The main intention in allowing free movement and interaction in space was to educate public manners and "transform the 'flâneur' into a citizen policeman" (Bennett 1995, p.48). At first glance, this historical account of the evolution of libraries and museums seems to contradict Tschumi's argument that programme is essential in the exercise of control. How did public libraries and museums exercised control and transformed public manners by reducing their programmatic control? One may start to address this issue by understanding that the 'ritual of programme' can be exercised explicitly (through an "organised repetitions of events, once announced in advance, [that is,] a descriptive notice of a formal series of proceedings" (1996, p.127), as Tschumi describes) or implicitly in the fact that the "original, spontaneous interaction of the body with a space" (Tschumi 1996, p.126) happens *collectively* in public educational environments.

Use, in other words, is essential for the exercise of power in public libraries and museums. As Bennett (1995, p.55) explains, use of these buildings were compared with the use of cathedrals, which would put their spirituality at risk by opening their spaces to the public, but which without the public could not perform their function. The collective use of museum spaces guaranteed that individuals were controlled by peers, without the need to supervision in an explicit top-down control. Although not specifically about public libraries, the work of Dovey (2008) is illuminative in this regard, as he suggests that explicit/implicit forms of control are in fact always present in space. He defines 'coercion' as a latent kind of force that operates by preventing subjects from ever forming intentions of resistance. It gains its power from being under the cover of voluntarism through situations that may resemble to allow free choice, but actually prevent it. An open gate with guards standing on both sides is an example of coercion (Dovey 2008). In opposition, he describes 'authority' as a form of control

marked by the absence of argument, relying on an unquestioned recognition and compliance. 'Authority' is, therefore, "integrated with the institutional structures of society such as the state, church, private corporation, school and family" (2008, p.14). Although being unquestioned, "authority rests upon a base of 'legitimation'" (Arendt apud Dovey 2008, p.14), and "the need for legitimation increases as power becomes totalising" (Dovey 2008, p.17). In the case of the state, for example, this legitimation is understood as 'public interest'. Dovey considers that the notion of public interest is particularly complex in public buildings which "can serve at once to legitimise authority, reinforce a sense of community, gratify the political or architectural will, turn a profit and reinforce self-deceit" (2008, p.16). While 'authority' rests upon a conceptual (without spatial dependence and definition) form of submission, where (conceptual) hierarchies define limits of action, 'coercion' rests upon a conceptual and spatial submission, where space is being used as a tool to produce limitations to action.

Dovey (2008) considers that "there is no eradication of power and we are always already engaged in its practice" (2008, p.18), i.e. there are only two possibilities: 'power-over' or 'power-to'. The first is related to forms of one individual or social group controlling others, while the second is related to the idea of empowerment of different individuals or social groups. Dovey recognises the attempts of architects such as Tschumi in deconstructing these "violent relations of control" through the idea of "conflict", particularly when they act by "writing under erasure, producing images like the 'stair' that leads nowhere or the 'door' that does not open: functional signifiers were used for play, supposedly without signifieds" (Dovey 2008, p.36). However, Dovey is very critical regarding the conflicting relation between space and programme, as for him it does not actually lead to any kind of real empowerment. For him, the practice of 'power-to' would come from the practice of negotiation, which he associates with Hannah Arendt's concept of "power by acting in concert" (2008, pp.57–58). The 'power of acting in concert' is a concept defined by Hannah Arendt in 'The Human Condition' (1998, p.244 first published in 1958). The power of many men acting in concert is opposed to the power of a single entity (sovereignty) – be it one man or a collective entity of nation/state. The former has the capacity to limit

the reality of the latter. Dovey (2008) is admittedly[20] vague when referring to spaces that may produce the opposite effect of control. For example, he suggests that this empowerment-through-negotiation comes from the 'places of difference', which would encourage new forms of authority and authorship (2008, p.58). However, he does not elaborate what 'places of difference' means.

In any case, despite this vagueness, Dovey argues that the practice of power (both '-over' and '-to') through the built environment could happen in both deep tree-like patterns of configuration and in 'open plan' configurations, where this second kind of building might produce "an illusion of freedom of movement" with "new higher levels of surveillance and control" (Dovey 2008, p.27). In this sense, he writes:

> *"The most important of the social micro-practices whereby disciplinary power transforms human beings into subjects is the 'gaze', a practice of disciplinary control through asymmetrical visibility." (Dovey 2008, p.21)*

Asymmetrical visibility is also what Bennett exposes as a technique used in museums and fairs to control the movement of the masses, particularly through elevated promenades (1995, pp.55–56). In fact, Bennett highlights the importance of the presence of a great quantity of people in space so that the exercise of surveillance could be manifested (Bennett 1995, p.55). If space was emptied of people, he argues, individuals could easily feel that they were not being watched and hence could commit violations to the established order.

At this point, in order to counterpoint the proposition of how space serves for the exercise of surveillance, the work of Henri Lefebvre should be considered, particularly his definition of 'spatial practice' in "The production of space" (1991)[21]. As the title suggests, Lefebvre's work is concerned with how space is produced (socially, philosophically, mathematically, politically, culturally, artistically, etc.). The work is a dense one, as he revises and synthesises how the production of space happens in all these spheres. Despite this major synthetic effort, his emphasis and goal is to understand the political production of space, in particular "how space serves, and

20 As Dovey explains, his work focuses on the *constraints* of empowerment and liberation in built form (Dovey 2008 preface xi).

21 Original in French, "La production de l'espace" (1974).

how hegemony [of the bourgeoisie] makes use of it, in the establishment (…) of a 'system'" (1991, p.11), how this hegemony "is exercised over society as a whole" (ibid. p.10) through space, and by contrast, how space (potentially) serves to the practice of an emancipatory and revolutionary power (ibid. pp.377, 383, 391). In short, as David Harvey writes (1991, p.431), "The production of space" is "an intensely political document", as it addresses not only the production of capitalist space, but also the spatial means of revolutionising such space.

The concept of 'spatial practice' is central to this argument. 'Spatial practice' is not the same as 'social practice', as the first is the spatial materialisation of the second, which embeds all spatial constraints and revolutionary potentials (Lefebvre 1991, pp.8, 366). He distinguishes 'spatial practice' from 'representations of space', and from 'representational space' (ibid., p.33). 'Spatial practice' concerns the production and reproduction of each social formation *in space* (ibid., pp.8, 33). 'Representations of space' concern the conceptualised space of scientists, mathematicians, planners and architects (ibid., p.38). 'Representational space' concerns the symbolic use of physical space, lived through associations of (spatial) images and signs (ibid., p.39). He repeatedly returns to this triad in order to construct his arguments, proposing that these three 'spaces' cannot (or should not) be understood separated one from another. Social space always involves a certain level of collective performance, of imposed order and of embodied symbolism or coding (ibid., p.33).

Lefebvre acknowledges that the space of a social order – for example, the capitalist hegemonic power of bourgeoisie – is hidden in the order of space (ibid., p.289). In other words, space organises society by depriving, excluding or benefiting particular groups in relation to others. However, differently from Foucault, who Lefebvre criticises for never "bridging the gap between theoretical (epistemological) realm and the practical one (…), between the space of the philosophers and the space of people who deal with material things" (ibid, p.4), he argues that praxis – or social practice in space (i.e. 'spatial practice') – provides the seeds for changing the establishment (ibid., p.366). He proposes that 'spatial practice' leads to an emancipatory power to disclose new realities by means of deconstruction of established forms, functions and structures (ibid., p.369). He provides the example

of the transformation of the Roman Basilica by means of Christianity appropriation and co-optation over time and through changing the practice, meaning and even the underlying architectural order of the building (ibid., p.369).

Therefore, considering Lefebvre's ideas, the collective use in public library space should not be seen merely as the embodiment of control of the masses. Rather, it should be seen as the potential producer of a space for political practice and social revolution (in the sense of generating new modes of social production and interaction). It should be noted, however, that the intention here is not to provide a complete review of Lefebvre ideas, nor it is to take them for granted (these are not part of the scope of the present work). Rather, the work aims to elaborate its own theoretical position as to the relationship between space, society and co-presence. To this effect, Lefebvre's understating of 'spatial practice' as an active and embodied (via co-presence of people in space) materialization of 'social practices' is seen as a subtle, yet fundamental concept for the present work. This is mainly due to the fact that beyond their social and ideological propaganda – and beyond their social change via education – the Library-Parks main role concerns socialisation in architectural space.

In this sense, and to conclude this section (2.1), it is clear that the social function of public libraries is expressed in space, programme and use. Space organises access to knowledge according to an epistemology, programme defines an educational agenda, and use materialises these conceptual definitions into real collective behaviours. Moreover, as we revised here, power relations are manifested in each of these three aspects. By embedding an epistemology of science, space also embeds social and cultural hierarchies. Through defining an educational agenda for public libraries, programme endorses the idea that citizenship depends on instruction and literacy, implying technocracy. Finally, by becoming collective under the frames of space and programme, use materialises the idea of a 'self-regulated society', which embeds a twofold process: to be regulated by all others and to engage in a process of participatory and revolutionary action and regulation.

Notes on the formation of public libraries in Latin America and on the comparison between European and Latin American experiences

It is important to highlight that the literature has yet not provided a thorough investigation of the formation and evolution of public libraries in the Latin American context. Harris' work (1999), for example, although attempting to form a complete "History of Libraries in the Western World" (as the title suggests), greatly lacks information about the Latin American context. In his book, the history of Latin American libraries takes less than two pages (Harris 1999, pp.163–164), and it groups all historical periods, nations and types of libraries in the same historical account. While some recent authors provide brief historical accounts of the profession of librarianship in Latin American countries (e.g. Alvarado 2002 in the case of Brazil), the document that offers the clearest picture of the case of public libraries in the Latin America is UNESCO's report on the São Paulo Conference for Latin American Libraries (1951), which was published in 1952 (UNESCO 1952).

The document is mostly concerned with listing the challenges for the development of public libraries in Latin America at the time of the conference (1951). In most of its 194 pages it lists recommendations for policies for international cooperation, methods for surveys, training of librarians, strategies of management, types of services and other administrative measures to promote the distribution of public libraries in Latin America. It provides a very brief review of the history of libraries in Latin America (UNESCO 1952, pp.21–22), dating their emergence in the nineteenth century (1810, in Buenos Aires; 1820, in Lima) and twentieth century (1921, in Mexico City; 1935, in São Paulo), and associating it with the emancipation from colonial and imperial periods. It suggests, in this sense, that the public library gave materiality to "the democratization of culture and opportunity for educational and social progress" (UNESCO 1952, p.21).

It is important to highlight that the report makes it clear that the references for these ideologies came from Europe and the United States (UNESCO 1952, pp.22, 39–40, 53) and that the public libraries in Latin America were constructed "along the lines of the great European libraries" (1952, p.21). In fact, the report suggests many times that Europe and the United States *should* serve as examples. This is evident in Chapter 5, titled "The Open-Access System", which aims to promote the idea that

visitors should have free access to books, as it encourages reading (1952, p.65). In order to argue towards the use of the 'open-access' system, the report enumerates the places that serve as example of this system: "(…) Great Britain, the United States, Sweden, Norway, Denmark and elsewhere" (1952, p.53). In other words, from this report, not only the history of public libraries in Latin America is associated with European history, but also the recommendations for its successful future seem to imply that Latin America should remain using European experiences as examples.

However, it escapes the scope of the present work to produce another historical account on the evolution of public libraries in Latin America. Therefore, a premise that this thesis will admittedly accept is that many of the ideas and experiences developed in Europe were imported to Latin America, including the social function of public libraries. In other words, a hypothesis is that the Library-Parks of Medellín are somehow 'heirs' of these European libraries analysed by the literature revised above. It should be pointed out, however, that this thesis attempts to understand whether this direction of influence may have now shifted. In other words, if Medellín is an international model, how does the experience in the Library-Parks relate back to the European context? Is Medellín merely reproducing previous European experiences, or is it inventing a new type of public library?

2.2 Current organisational changes in public libraries

At the same time that Medellín is being 'upgraded', public libraries are undergoing important organisational and programmatic changes. The second section of this Chapter addresses the current organisational changes that public libraries are undergoing, focusing on how they have been recently transforming from spaces for the ordering and access to information to multifunctional spaces of informal encounters. The literature indicates that this shift has a profound impact on the ways in which public libraries function for society, altering their administrative as well as their spatial structures.

Today libraries house in their premises many more activities than they did in the past. These activities were mainly about the organisation of knowledge and access to information. Since digital technology has offered everyone rapid and wide access to information, libraries have undergone programmatic transformations (Sears & Crandall 2010; Verheul 2010). As seen briefly in the previous chapter, Imholz (2008) argues that the internet liberated the library of the task of collecting an educational content, changing its focus to the social experience of such content, particularly because "a social experience is what differentiates the library from sitting at home in front of the computer screen" (2008). She suggests that "the 21st century library will be a place to access people, not information" (2008).

This recent phenomenon was also highlighted by Shoham and Yablonka (2008), who explored the role of library buildings in contemporary society, where information and knowledge do not necessarily come from the reading of books – which is seen by the authors as the 'original' or 'traditional' purpose of this building type (Shoham & Yablonka 2008). To understand how libraries are being transformed, they interviewed a number of professionals related to the construction of recent libraries in Israel and Europe (librarians, architects, sociologists, urban planners, etc.). Their study showed a recent tendency of libraries to expand their educational programmes to include uses that are 'more collective' – such as meetings, events, or courses. The library is a repository of knowledge for an educational content. Aside to the educational purpose of libraries, the authors emphasise the importance for these institutions to represent a public message and convey 'prestige': the library

"symbolises progress, education and a positive image" (Shoham & Yablonka 2008). It is also a cultural meeting place, 'like a public square', as some of the interviewed professionals explained. Finally, it is a political symbol, a materialisation of knowledge and the expression of the status it holds in society. This representation would be the main message in the construction of a monumental library, for instance. Therefore, it is clear for the authors that the contemporary public library is being built for a variety of interests, which diverge from the original purpose to provide a place for the organisation of knowledge and focused learning. Shoham and Yablonka observe that these expanded purposes might contradict the "library's essential content and the profession of librarianship", transforming its space into a "structure that just happen to house a library" (2008). In other words, these expanded purposes are related to the building's space and the message it carries to the wide public instead of its programme. However, the authors remind us of the fact that the issues raised by contemporary libraries and the transformations brought to them by digital technology are not simple ones, as new (and enormous) libraries are still being built. In some sense, in spite of the digital access to knowledge, the resources invested by society in these new buildings demonstrate that the physical presence of libraries continues to carry great social value. However, as access to print matter becomes less significant, libraries are undergoing programmatic transformations.

Public libraries and the internet

These transformations brought by digital technology influenced public libraries in fundamental aspects intrinsic to their functioning. Among these changes, one should mention: the location of public libraries branches, the role of librarians, the rate of users' traffic and use of libraries' collections, and libraries' role in regards to equality of access to information.

a) *Libraries' branches*. Hapel (2012) considers that the internet has changed one of the fundamental reasons for spreading branches of public libraries in the city. According to him, library branches have often small collections. The size of these modest collections, especially if compared with the mobile information that people can access through internet, is the definitive reason for criticising the efficacy, and thereafter the need for these libraries (Hapel 2012). According to him, this is the main reason why small public libraries are being closed.

b) *Librarians' roles*. The internet had a profound impact on librarians' roles, directly (when librarians devote time to helping people use computers), or indirectly (when, for instance, specific requests are made to librarians because of information found in the internet) (Kinney 2010). In addition, Kinney (2010) highlights the new function as mediators of meetings and other community events that librarians have to engage. Kinney argues that, in this sense, librarians become not only representatives of an institution that organises educational content, but also of an institution that coordinates social interactions. These events are becoming more frequent since the internet facilitated their organisation and booking methods, a fact that indicates that librarians' work is shifting towards being only about organising social meetings.

c) *Rate of users' traffic and use of libraries' collections*. The internet also influenced the use of library space. The inclusion of computers in the library results in an average increase of users' traffic, but decrease of items' circulation and reference transactions (Kinney 2010). In other words, the inclusion of computers not only adds another kind of service to libraries, but also it changes their original ones. Kinney does not investigate, however, what types of activities emerge from this shift in the pattern of access.

d) *Libraries' role in relation to equality of access to information*. Disparities of access to information have a significant impact in several aspects, e.g. economic and educational advancement, community participation and access to health information (Kinney 2010; Taylor et al. 2012). Although digital technology seems to resolve the problem of offering open access to information to a wide group of people, it does not change disparities among populations in relation to access to the technology itself. These disparities in relation to access to digital technology are called 'digital divides', and many authors investigate geographical (Mariscal 2005; James 2009; Kinney 2010; Hilbert 2010), economical (Tomasello & Mcclure 2002; Hilbert 2010), demographical (Schwanen & Kwan 2008; Kinney 2010; Tiraldo & Muñoz 2011), technological (Tomasello & Mcclure 2002; Vavrek 2004; Schwanen & Kwan 2008; Sears & Crandall 2010; Tiraldo & Muñoz 2011), and historical (Kinney 2010; Verheul 2010) aspects of these disparities. In general, members of disadvantaged groups are more frequent the users of library computers and more likely to rely on library computers as their only point of internet access. Access to information technology in public libraries does not imply equity. People that have access to these technologies at home have '24 hours a

day, 7 days a week' of connection to the internet. In contrast, people that rely on the library for these technologies are subject to the opening times of the building, and with possible constraints of time for each session of use (Kinney 2010). Library computers are used for a variety of activities, especially e-mail, general web surfing, education and research, entertainment, job seeking, social networking, e-commerce, e-business, e-government and health information (Kinney 2010). Usage of the library computer other than the internet may include word processing and spread sheets, learning basic computer skills, and printing (Kinney 2010). It is noteworthy that libraries originally blocked the use of email and chat rooms because they are "interactive" (Schneider apud Kinney 2010, p.139). They feared that this interaction would lead visitors to use the library spaces for non-educational purposes. This restriction has been revoked after emails became one of the main means of communication in the contemporary society, particularly for job and educational applications (Kinney 2010).

In short, digital technology has transformed the ways in which public libraries are used in many aspects. Although not all public libraries are affected by the internet – for example, archival and national libraries still have an important role in providing access to physical content – this is not the case with 'neighbourhood' libraries, whose collections are often small and with no particular archival value. As many authors suggest, these transformations are emphasising the role of libraries in relation to 'strengthening the surrounding communities' (Imholz 2008; Scott 2011b; Scott 2011a; Hapel 2012). In this sense, libraries are often called 'third places' (Kinney 2010; Scott 2011b), in relation to the fact that they offer a space for social interactions which are distinct from the ones found in one's house ('first place') or work/school ('second places'). In 'third places', informal social relations have a great value (Matarasso 1998; Scott 2011b), particularly for strengthening the sense of collectivity of a social group. In other words, public libraries could be seen as moving from the organisation of knowledge to the organisation of community.

From accessing information to 'accessing people'

The idea of knowledge is embedded in libraries (Forgan 1986; Koch 2004) through the organisation of architectural space and access to informational content. Similarly, social values are part of the structuring of spatial and social relations in library buildings. Public libraries have a fundamental role in hosting the ideal of democratic communication: they are places for unfettered investigation, collective discourse and culture (Buschman 2005; Gaiman 2013). However, Buschman (2005) suggests that this ideal is changed by "the new public philosophy", where economics frames all public spheres, transforming the logic of collective discourse into one of consumption and production (he points the rhetorical shift in libraries from "patrons" to "consumers"). Referring to changes in the ways that libraries are funded in the US, Buschman argues that the "new public philosophy" places importance only in the production of technology of information – which is focused on the networking of resources rather than on research and reflection, which would be the pubic functions of libraries according to the author. In this sense, business and profit models dictate the pace of political and collective agenda, making libraries' changes "merely driven by what is now 'necessary' to keep libraries alive", that is, popular collections, coffee bars, economically-useful electronic resources (Buschman 2005). According to him, these changes are actively "deconstructing the democratic public sphere discourse that libraries represent" (Buschman 2005, 10). These ideas seem to contradict the arguments presented by Scott (Scott 2011b; Scott 2011a) in relation to how libraries strengthen community values. According to her, the public function of libraries is made manifest exactly through the programming of 'networking of resources rather than on research and reflection'. She emphasises how the activities that informally engage people together help building communities that would otherwise be segregated into ethnic and economic backgrounds. In short, these two studies open up the problem of how the inclusion of new programmes affects the libraries' role for 'strengthening communities'. Behind this problem lies a subtle issue of 'how much *public*' and 'how much *library*' is the contemporary *public library*, particularly in relation to the influence of digital technology to the use of libraries.

This issue can be illustrated through the discussion that lasted two years (2012-2014) on the transformation of the New York Public Library (designed by Foster and

Partners). The main plan was to transform a great part of this library (consisting of shelves with more or less 3 million books) into public spaces consisting of areas for studying and meeting. The discussion on this transformation – which featured in many papers of wide circulation[22] – clearly exposed two opposed groups. Those who defend the new project affirmed that the new scheme would make the Library more public, i.e. it would be accessible by a diverse range of users. The group that was contrary to the refurbishment saw that "the real library" would be transformed into a "fancy internet cafe". Both groups can be considered to be right: New York Public Library is used mostly by academics (and tourists) that are particularly interested in the libraries' archival collection. In other words, the new scheme would in fact make the library be used by different types of users. However, the opposing group is also right in foreseeing that these new activities are actually not related to the functioning of a 'real library' – and in fact the proposition of a renovation of this library perhaps exposes a crisis of this function for society[23].

What emerges from these discussions is that the social programme and purpose of buildings is often defined abstractly through language and rarely discussed in relation to different types of users, and how activities performed by users take place in space as spatial practices. These different purposes in contemporary libraries – physical access to information, virtual access to information and public gathering – define different groups of users (Figure 2.05): firstly, the users who visit the library for physically accessing books, information and educational content; secondly, those users who want to use the library for its space and various activities it offers regardless of its specific educational and informational content; thirdly, the users that come to the library because it provides access to internet, i.e. to a content that is external to the library as physical space. If visiting a library for the specific purpose of borrowing and reading books defines the traditional programmatic purpose of this building type,

22 The Wall Street Journal (Huxtable 2012), The New York Times (Pogreebin 2012), New York Daily News (Nazaryan 2012), and the Dezeen Online Magazine (Frearson 2012; Frearson 2014; Brake 2015).

23 It is interesting to note that Kabo (2005) sees that the New York Public Library stands in a position of working as both an 'archival type' of library and a 'community type' library. Studying how programme is used in architects' design processes, Kabo (2005) sees that public libraries are exemplar in exposing the problem of public participation and design choices. He highlights the difference between what he calls 'urban public libraries', 'university or national libraries' and 'community circulating libraries' (Kabo 2005, p.604). For him, the 'urban public library' type combines the functions of the other two: it has an important archival collection as 'university or national libraries' have, and it provides access to a variety of types of users as the 'community circulating libraries' do. The New York Public library is, for Kabo, an example of the 'urban' type.

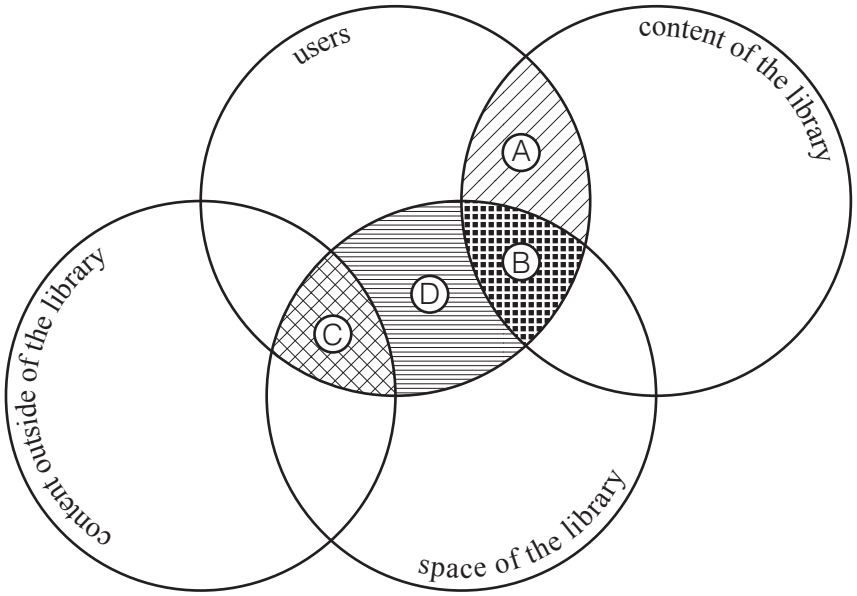


Figure 2.05: Diagram exposing the different purposes of the library according to the relation of users with the content housed in the library, the content external to the library, and the space of the library. A) The library functions as a lending library: users visit the building to borrow books, and do not stay to perform any activity other than borrowing. B) The library functions as a reference library: users access content of the library inside the building. C) The library functions as internet access point: users come to the library because they are interested in a space with internet access provision. D) The library functions as 'extension of the public space': users are interested in coming to a space where they are aware of others rather than for its specific programme. (Capillé & Psarra 2014)

the question that arises is: how is this purpose combined with other programmes? What are the spatial dimensions of these conflicting activities, and how do different types of users perform these activities in space? In summary, although many studies investigate the organisational changes that public libraries are currently passing, the spatial dimensions of these changes are still unclear issues.

A study that started to address this question is the one conducted by Zook and Bafna (2012). They approach the Seattle Public Library (designed by OMA) in order to analyse the impact of the programmatic changes in the public use of the building. The study proposes that in order to capture the 'publicness' of public libraries, one must follow the traces of its users so as to to map their collective routines in space. In particular, they use a mapping process of 'stereotypical users' to identify commonalities and differences in their paths in the library. In addition, they map how these paths are intervisible between each other. They explain that "since patterns of visual exposure are related to the perceived 'publicness' of particular locations, they can directly influence the social self that is adopted by the user in

ways well described in sociological literature". They conclude that the library works as a 'stage'[24] of intervisibilities, which forms a particular spatial culture that stimulates visitors to explore the building. Since their work is about a single building (and since the Seattle Public Library, by OMA), there are significant limitations in regards to the extensions of their results to understand other public libraries. Nevertheless, the methods that they propose to capture the 'publicness' of this building are easily applicable to other libraries. In the next chapter I discuss how the present work used similar methods and how it improved them for the cases of Medellín.

2.3 Refining the research questions

This chapter clarified what were the 'traditional' social intentions of public libraries and how these social intentions were manifested in space and programme. The studies revised helped build a clear picture of the function of traditional public libraries. However, considering the organisational changes that public libraries are undergoing, what is the impact in space and spatial practices in these buildings? Moreover, how public libraries' organisational changes impact in their social function and their value for society? It is significant that the literature – for example, Forgan (1986), Markus (1987; 1993) and Bennett (1995) – acknowledges that public libraries are similar to other public buildings that emerged in the same period (e.g. museums and department stores), combining public access with an intention to educate society. Their intention to educate society is manifested both in the regulation of visitors' behaviours and in the ways in which the artefacts that they display (e.g. books in libraries, or works of art and culture in museums) are organised and distributed in space. In this sense, public libraries are considered to embed power relations through the educational organisation of access to knowledge. However, the chapter shows that the internet and the value given to socialisation as a form of learning suggest that libraries are shifting from a space for the organisation of knowledge to a space for the organisation of social relations. This implies therefore that, aside the programmatic changes, there is a fundamental shift in how power relations are embedded and

24 They relate the term 'staging' to Goffman's (1959) description of the dramaturgical perspective in social life.

manifested in library spaces. In short, how can one define types of public libraries considering that libraries are less about information (as the review in section 2.2 shows), and more about public use and social encounter? How does the public library space combine the traditional function of public libraries (as I have described it) with the new technologies of communication and emphasis in socialisation and interaction?

As we have seen in the previous chapter, after prescribing how the Library-Parks should be used, the 'Citizen Deal for the care and appropriation of the Library-Parks' (Fajardo Valderrama 2007) – which is the document that officially endorses the behavioural rules that should be followed in the spaces of the libraries – curiously ends by declaring that "the Library-Parks are spaces for freedom". Indeed, as we have seen so far, public libraries traditionally embed the contradiction of power of the state and the empowerment of the population. For example, Forgan and Bennett argue that the position of public museums in the city in 18th and 19th centuries is indicative of the intention to provide equal access to knowledge (as they are often located in the centre of the cities) and, at the same time, it is also indicative of social status, respectability and erudition as these are often neighbourhoods inhabited by the bourgeoisie. Considering the case of the Library-Parks, one should then interrogate the ideology behind placing these public libraries in the core of informal settlements. The organisers of the Project defend that the location of the libraries intends to symbolise social change and empowerment of underprivileged populations, since they used to be associated with a violent past. However, it may also indicate state presence in these areas. As we saw in the previous chapter, this ambiguity – state-led administration versus empowerment of populations – is in the core of the political agenda of urban upgrading of Medellín. How do the libraries then communicate and produce this 'ambiguous' political agenda through their space, programme and use?

Traditional libraries, as we saw, materialise an epistemology of science through their space, programme and use. This epistemology can be retrieved from these three aspects, as researchers have shown (e.g. Forgan 1986; Markus 1993; Koch 2004). By comparison, one may retrieve how libraries organise social, cultural and political relations through capturing the interrelation between collective use, programme and architecture – which is what this thesis aims to achieve.

Chapter 3
Literature review, Part II: The interrelation between space and society in public libraries

This chapter reviews literature on the interrelation between space and society in public educational buildings, such as public libraries and museums. It starts by providing an overview of the methods that have been used in previous studies on public libraries, considering the body of literature revised in the previous chapter. This part exposes that the literature often approaches space discursively (through programmatic labels such as 'maker space', 'reading space', 'children's library', etc. or through metaphors such as 'internet-cafe', 'third space', 'personal space'[1], 'parochial realm'[2], etc.), but not analytically. This gap in the understanding of the functioning of space in public libraries led the present work to adopt the theoretical and methodological framework from space syntax research, which provides means to understand and analyse the relationship between space, programme and social practices in both discursive and non-discursive ways. Space syntax is therefore reviewed in second section of this chapter (section 3.2). This section first reviews the basic premises of this theoretical and methodological approach. Then, it exposes the value of this approach for the current work. In other words, the intention is not only to review the theories from space syntax, but also to expose the context in which the current work may be placed, which highlights its contributions to the field.

A particular attention is given to the methods used by space syntax studies. However, the full account of the methodological approach taken by this research includes the topics of the next two chapters (4 and 5). In chapter 4, a pilot study illustrates and tests the methods discussed in this chapter for the case of public libraries and for the scope set by this thesis' research questions. Chapter 4 also explains how the methodological procedures were adapted for the cases of Medellín, considering the experience of the pilot study (chapter 4) and the review of space syntax brought

1 (Given & Leckie 2003)

2 (Aabø & Audunson 2012)

by this chapter (chapter 3). In chapter 5, the rationale for case selection is presented as well as the five libraries studied.

3.1. Introduction: how are public libraries analysed and compared?

The previous chapter reviewed literature on the formation of public libraries, their social functions and spatial and organisational characteristics. It also reviewed literature on the programmatic changes that public libraries undergone in the recent years. In this section, we shall look briefly at the methods that these studies utilised.

A first group of studies investigated about public libraries through a historical point of view, looking at documents and plans of public libraries as they were founded in the nineteenth century (e.g. Forgan 1986; Markus 1993; Bennett 1995; Harris 1999). These studies also looked at archives (e.g. both Forgan (1986) and Bennett (1995) review reports and minutes of meetings) that exposed the opinion of key individuals in respect to the functioning of public libraries at that time. For example, Bennett (1995) looks at the opinions of the first chief librarians and curators of museums and libraries in order to capture how they see the functioning of these institutions. The historical account of the formation of public libraries is very rich in this respect, as it describes the buildings not only as material artefacts, but also as the product of social and political discourse. These studies obviously lack, however, information from empirical observations, which is a fact that limits their accuracy to the descriptions brought by these key informants.

Aside looking at plans and archives, the literature also relies on analysing the messages that morphological type, architectural style and furniture design carried to the wider public in the nineteenth century (e.g. Forgan 1986; Markus 1993). In this regard, Forgan (1986, pp.101–112) offers an interesting approach to capturing the relationship between social hierarchies and scientific ideologies by looking at the style and spatial distribution of furniture elements in the building interiors of early scientific societies. For example, she shows that the hierarchical position of the president of those societies implied that he was to seat in a specially designed chair, which was "taller than normal chairs and lovingly carved with the symbols of the society", "comparable to the bishop's throne or judge's seat" (Forgan 1986, p.112).

We may interrogate, however, whether this is an adequate source of information in Latin American context, where the relationship between architectural style and social function has been widely transformed by modernist and post-modernist periods and by informal urban growth, which makes the task of interpreting messages from architectural style become a very complex one. Nevertheless, the attempt to interpret how architecture and furniture embeds cultural and social discourse can be seen as additional to other methods, and might help revealing aspects that other kinds of analysis cannot grasp.

The studies that addressed public libraries current organisational changes use quantitative analyses (e.g. Shoham 2001; Leckie & Hopkins 2002; Given & Leckie 2003; Kinney 2010), and qualitative analyses (e.g. Matarasso 1998; Leckie & Hopkins 2002; Shoham & Yablonka 2008), particularly using interviews (e.g. Matarasso 1998; Shoham & Yablonka 2008; Scott 2011). The quantitative data concern understanding allocation of public funds towards public libraries (e.g. Buschman 2005), number of accesses and requests to librarians (e.g. Kinney 2010), demographics of users (e.g. Shoham 2001; Leckie & Hopkins 2002), and data regarding the use of computers (e.g. Kinney 2010). The qualitative data concerned mainly interviews with visitors and librarians, which is the information that underpinned formulations in regards to how different social groups are reacting to the changes in public libraries and to particular educational and cultural programmes that the libraries coordinate (e.g. Scott 2011).

However, little has been studied about the spaces of these buildings in relation to their recent organisational changes. The literature that does refer to spatial aspects of these changes in public libraries may be divided into two groups: on the one hand, there are studies that refer to space discursively (through programmatic labels such as 'maker space', 'reading space', 'children's library', etc. or through metaphors such as 'internet-cafe', 'third space', 'personal space'[3], 'parochial realm'[4], etc.). On the other hand, there are studies that refer to space analytically, particularly using space syntax methods to identify spatial properties in the functioning of public libraries. In the previous chapter, Markus (1993), Koch (2004) and Zook and Bafna provide examples of this methodological approach. Markus (1993) uses space syntax methods to analyse the spatial configuration of particular programmatic sectors in the historical

3 (Given & Leckie 2003)

4 (Aabø & Audunson 2012)

formation of building types. Koch (2004) uses space syntax to understand the relationship between spatial configuration, patterns of use and organisation of literary contents. In other words, they do not focus on the current organisational shift on offering public space more than organising knowledge in libraries. Little has been advanced in understanding the 'publicness' of public libraries – and perhaps the only study that starts to address this issue is the one carried out by Zook and Bafna (2012). They approach the Seattle Public Library (designed by OMA) through a series of analysis on the perspective of different types of users and conclude towards the formation of a particular spatial culture that stimulates exploration. Although they acknowledge the limitations of the discussions, the study is nevertheless a significant one in indicating that in order to capture the 'publicness' of these buildings, one must follow the traces of its users in order to build their collective routines in space. In these studies, space syntax approach allowed for a rigorous interpretation and analysis of the relationship between space, programme and social practices in both discursive and non-discursive ways. Space syntax is therefore reviewed in the next section.

3.2. Space syntax

In order to analyse the relationship between space, programme and social practices, the thesis adopts the theoretical and methodological framework from space syntax research. This section intends to complement the literature reviewed in the previous chapter, and provide a brief account on space syntax theories and methods. Developed at UCL in the 1970-80s, 'space syntax' main concern is with the interrelation between space and society, particularly through an understanding of built environment as configuration of interconnected spaces (Hillier et al. 1976; Hillier & Hanson 1984; Hillier 1996). This approach has led to a thorough field of investigation that has been developed in the last forty years.

This section first reviews the basic premises of this theoretical and methodological approach. Then, it exposes the value of this approach for the current work. In other words, the intention is not only to review the methods and theories, but also to expose the context in which the current work may be placed, which highlights its contributions to the field.

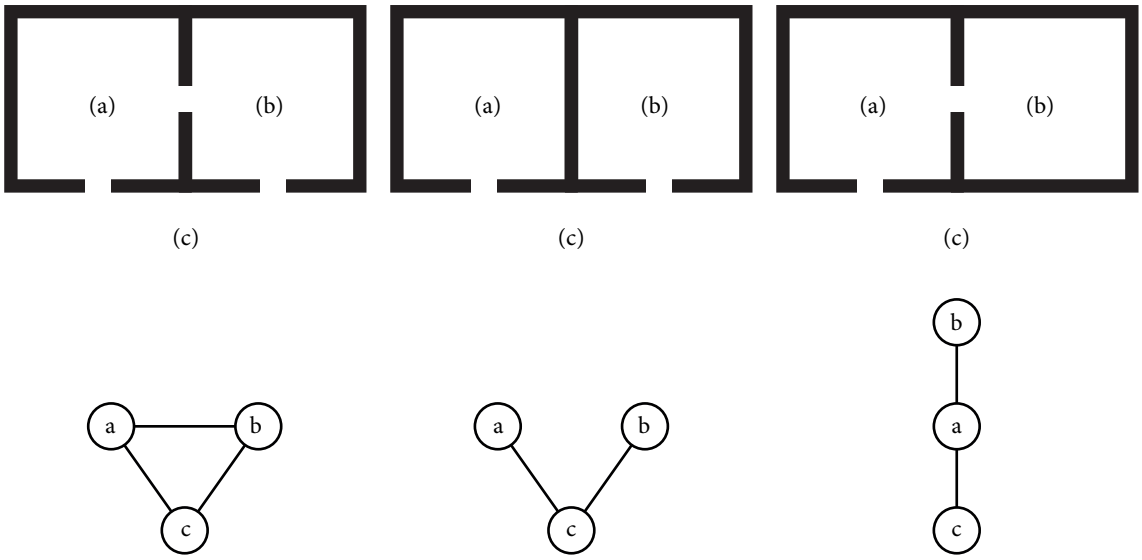


Figure 3.01: Three different ways that the spaces 'a' and 'b' can be connected to the outside space 'c'. The first option shows all connected to all. The second shows a system where spaces 'a' and 'b' can only be accessed via the outside (and not internally as well as in option one). The third option shows a system where space 'a' is the only entrance to space 'b', which is now two rooms distant to the outside. It becomes evident that configurational properties play an important role in changing how we may use spaces, as these simple changes affect affordances for movement, seclusion, intimacy and randomness. Source: similar drawing in Hillier and Hanson (1984, p.148) and Hillier et al (1987).

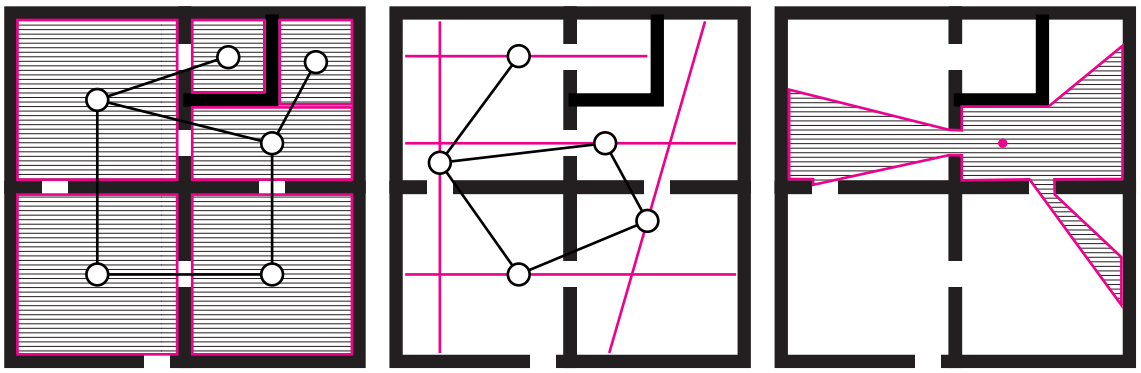


Figure 3.02: Convex spaces, axial lines and visual field.

Spatial configuration

Space syntax is based on the idea that spatial configuration, that is, the complex interrelation between spaces, is the main aspect that influences how we use the built environment and how it functions for society (Hillier & Hanson 1984; Hillier, Hanson, et al. 1987; Hillier 1996). In contrast to geometric and metric characteristics (for instance, shape and size), configuration cannot be perceived directly and 'at once'. For example, Figure 3.01 illustrates three different ways that the spaces 'a' and 'b' can be connected to the outside space 'c'. The first option shows all spaces connected to all others. The second shows a system where spaces 'a' and 'b' can only be accessed via the outside space 'c' (and not internally as well as in option one). The third option shows a system where space 'a' is the only entrance to space 'b', which is two rooms distant to the outside in this case. It becomes evident that configurational properties play an important role in changing how we may use spaces, as these simple changes affect affordances for movement, seclusion, intimacy and randomness – regardless of the size or shape of the rooms. Indeed, as research has shown (e.g. Hillier et al. 1993; Hillier 1996), the observed overall patterns of how we move and occupy space indicate that we *know how* to use configuration. Configuration is, as Hillier explains (Hillier & Penn 1991; Hillier 1996), an idea we normally 'think with', rather than 'think of', as we use it in our daily lives but we don't 'speak' about them. However, how can we interpret and describe each one of these options illustrated in Figure 3.01? And most importantly, how can we analyse the ways in which different configurations affect our use of space?

Space syntax research offers methodological approaches that help us to answer these questions. Firstly, it provides a method for the representation of how we perceive space and spatial configuration. This method consists in understanding the way we experience space, that is, how we move, occupy and see spaces (Figure 3.02). Space may, therefore, be described through these generic functions, forming three main spatial elements: convex spaces, axial lines and visual field. In other words, 'convexity' is fundamentally related to occupation, as 'axiality' is to movement and 'visible field' is to intelligibility; forming the main generic functions and their correspondent spatial descriptions.

'Convex space' is a space in which no line between any two of its points crosses the perimeter (Hillier 1996). These spaces are linked on the basis of spatial connectivity (e.g. a door in between two rooms). 'Axial lines' are the longest and fewest straight lines that connect all convex spaces of the plan. Two axial lines are considered linked when they cross each other. 'Isovist'[5] is a visual field (polygon) generated from a location (point) in space. Two locations (points) are considered visually linked when one can directly see another.

Spaces in a building or urban environment already present a potential or *probable* generic function according to their topological differences (or asymmetries) (1996, pp.304–305). For instance, an axial line that has only one connection is less suitable for movement in between spaces than another with many connections. In other words, the differences and asymmetries of the position of certain spaces in relation to others make the plan of a built environment become a scheme of probable asymmetries of occupation, movement and intelligibility. Considering this theoretical proposition –namely, that space constrains use through the asymmetries of its functioning parts – and considering that space is an always-present element in everyday experience, we may suggest that it is one of the most powerful sources of constraint to the infinite forms of use, as it acts *implicitly* through our constant naturalisation of everyday experience.

These methods are therefore very useful to the task of comparing buildings. For instance, in Figure 3.01, if we consider that each option as a different public library, and that space 'a' represents the location of the issue desk and bookshelves, and space 'b' represents the location of meeting rooms, we may see that each option works in completely distinct ways. The first option provides independent entrances to both the bookshelves and meeting rooms, and allow for intercommunication in between these programmes. The second option also provides independent accesses to the programmes, but a potential visitor is required to leave the building in order to move from one programme to the other. The third option imposes to the user of the meeting room that he crosses the spaces of the bookshelves and issue desk. In short, through a very simple exercise of representation and analysis of spatial configuration we expose the salient differences between these libraries. Of course this analysis

5 The term 'isovist', used to represent an individual visual field, comes from the work of Benedikt (Benedikt 1979).

does not capture all the aspects that influence our experience in buildings. For example, one could add a description of architectural styles, or consider materiality, size and shape of the rooms, or look to the wider context in which they are placed, etc. For instance, we have seen in Forgan (1986) how these aspects influence the use of scientific societies. The argument to look mainly at spatial configuration is not to suggest that it is solely what influences our experience in built environment. Rather, the argument is that the analysis of spatial configuration captures some of the most basic functions of architecture (Hillier, Hanson, et al. 1987). As we have briefly seen, it captures constraints to movement and occupation, it exposes links and barriers, and it suggests levels of publicity and intimacy. These 'basic functions' can be then contrasted against empirical observations of users activity, which exposes the interrelation between space and social practices.

Space syntax research developed many quantitative methods to analyse spatial configurations in ways to expose how it relates to our experience in buildings. We shall revise some of these methods throughout the thesis, as they appear in the literature of syntactic studies or in the analytical work carried out. To illustrate, we may mention one of the most important and well-known methods: the measure of spatial integration. Integration is a measure of the average depth of a space in relation to all other spaces in the system[6]. In other words, values of spatial integration expose the relative asymmetry of specific spaces in relation to the whole complex. Spaces can be ranked from the 'most integrated' to the 'most segregated'[7]. In the case of buildings, the most integrated spaces are often the ones with higher probability of spontaneous encounter (Hillier 1996; Hillier et al. 1996), since they are the closest to all others, becoming a potential 'core' for movement. Integration can be analysed in relation to each one of the types of spatial elements: convex, axial and visible fields. For example, 'convex integration analysis' stands for the analysis of integration of a system of convex spaces in a building or urban environment.

In this sense, space syntax research shows that spatial configuration produces a field of probable patterns of co-presence and encounter that precedes its manifestation

6 For a detail on the mathematics of the formula, see Hillier and Hanson's work (Hillier & Hanson 1984; Hillier 1996). Integration can be considered similar to 'closeness centrality' in social network analysis (Sailer & McCulloh 2012).

7 Often this variation is exposed in hot (most integrated) to cold (most segregated) colours. In black and white presentations the most integrated spaces are often in shades of black.

as collective social practices (Hillier 1989). This field is called 'virtual community', since it describes an unrealised pattern of use:

> *"(...) the field of probabilistic co-presence and encounter generated by an urban layout has a definite and describable structure, one which varies greatly with the structuring of space; (...) We suggest it should be called the 'virtual community': community, because it is a form of group awareness in a collectivity; virtual because it has not yet been realized through interaction among its members. The virtual community is the product of spatial design." (Hillier, Burdett, et al. 1987, p.248)*

In other words, and as explained before, 'virtual community' is not the same as 'spatial culture', since the former derives directly from the affordances of the design of space, whereas the latter is the result of actual use of space (see Hillier 1989; Ziada 2005). Nevertheless, the high correlation between rates of observed movement and other social practices and measures of spatial configuration, as extensive research has shown (e.g. Hillier & Penn 1991; Hillier et al. 1993), indicates that very often the 'spatial culture' may be predicted from the 'virtual community'. In other words, space syntax may be said to offer a 'predictive power' (Penn 2001) to researchers and designers: it exposes how[8] most people use (or will use) space on the basis of its analyses. However, as we shall discuss in the next sections, this predictive capacity works better in the case of urban spaces, than interior of buildings. This is mostly because of another aspect that changes the 'field of probable patterns of use' prior to actual use of the building, that is, programme.

Programme is a predefined structure of how activities and interactions should take place, before the very act of inhabitation (Hillier et al. 1984; Markus 1987, p.469; Tschumi 1996). In this sense, programme can be understood as a 'social script' which, like in a theatre play, defines roles for different categories of people and their actions in space. For example, in the case of a clinic, the programme defines the roles of patients and doctors, as well as their actions and their locations in space (Hillier et al. 1984). The case of buildings with open access to the public – such as public libraries, museums and malls – is therefore a crucial one, as they have an overall function to

8 Penn (2001) argues that space syntax often explains 'how' people use space, rather than 'why'. For him, the question of 'why' people use space in a certain way is a more complex one, as it entails an investigation of each person's individual motivations and cognition.

fulfil (their programmes), but work at the same time as extensions of the public urban space (which is unprogrammed). In the next section we intend to look at the case of museums, as they illustrate this issue as well as open others that are relevant for the case of public libraries.

References from space syntax studies on museums

Space syntax research has built a thorough body of knowledge on the use, design and function of museums. Public libraries, however, have not been thoroughly investigated by space syntax methods yet. Aside the works reviewed in the thesis (e.g. Markus 1993; Koch 2004; Zook & Bafna 2012), and very recently published works (e.g. Sailer 2015, who investigates on the British Library as a generator of dynamic use patterns), there has been little discussion about the case of public libraries in the space syntax community. Nevertheless, as we have seen in chapter 2, museums and public libraries are similar in many ways. For these reasons, this section reviews a selection[9] of syntactic studies in order expose how has space syntax been used to develop our understanding of interior spaces of museums.

The study conducted by Hillier et al. (1996) on the Tate Gallery (in London) is a good starting point in this regard. Their aim was to evaluate how a proposed expansion and remodelling of the building could affect its overall spatial culture. Previous visitor surveys showed that visitors valued the informal ambience at the museum. The Tate therefore commissioned the study[10] because they wished to keep this informal atmosphere after the refurbishment. The three main questions studied were firstly, how could they visualise how the building was used? Secondly, what made the building work this way? And finally, what are the likely impacts that the proposed refurbishment would have in the way the building worked? Their study explains in detail the use of each method of empirical observation and spatial analysis. In addition, it is also exemplar in explaining how one may interpret these datasets. They utilised observational techniques for capturing how social practices

9 Since there is a large number of studies on museums using space syntax, it would have been impractical to review all of them. I focus, therefore, on a selection that highlights key methodological approaches.

10 The Tate Gallery commissioned the study to the Space Syntax Laboratory, at The Bartlett, UCL, in 1995.

Figure 3.03: Comparison between observed movement (movement traces of visitors in the first ten minutes of visit) and visual integration in the Tate Gallery. Sources: Hillier (2005), citing Hillier et al.'s (1996) study on the Tate Gallery, in London.

took place in space. Their aim was to capture two main types of use: movement and static occupation (Hillier et al. 1996, p.6). To capture movement, they performed observations of counting flows of people in both directions across thresholds of spaces (mainly doors) – an observation technique that is often called 'gate count' in space syntax studies. This type of observation allows for the calculation of the flows of people from one room to the other. Another type of observations utilised was to follow visitors[11] from the entrance until a certain pre-established time[12] (or until they leave the building) and record their path in a sheet of paper with the plan of the building – an observation technique that is often called 'trace path' or simply 'tracing' in space syntax studies. Since people don't know they are being followed and since their identities are not recorded, this technique becomes a good observational method to capture movement in very detailed yet unobtrusive way. To capture occupation, they performed 'snapshot observations', that is, they mapped the locations where people stand, move and sit (these were the only thee categories used in the study) in the plan of the building. These observations were done a number of times so that they could later be averaged into an occupancy rate per space. Then the study performed various kinds of spatial analyses and correlated the results with the data from the occupancy rates. The results of these correlations showed the high degree (up to 86%) to which the pattern of movement in the Tate can be accounted by the spatial layout of the gallery itself, rather than by a special attraction or even by

11 They followed 100 visitors.

12 They 'recorded' two different length of visit in this study: the first 5 and the first 10 minutes.

(a)

(b)

Figure 3.04: (a) Example of a long axis of visibility emphasising a particular work of art in the Sainsbury Wing of The National Gallery. Source: (2007b, p.184) (b) Example of the 'progressive fields of visibility' generated by the distribution of objects in Castelvecchio. Source: Tzortzi (2007b).

the guide[13] (Figure 3.03). Hillier et al. then assess how the new scheme would possibly affect the use of the building, considering that the values from spatial analyses were highly indicative of the patterns of use. One of the main contributions of Hillier et al.'s study to the present one is thus the methodological approach that links empirical observations with spatial analyses (Figure 3.03) in order to understand how buildings work the way they do.

13 Hillier (2005) adds to this, using Visual Graph Analysis (VGA) to correlate visual integration with movement paths in the Tate Gallery, showing that 68% of visitors' paths can be accounted for by the visual field structure.

Hillier acknowledges elsewhere (Hillier & Tzortzi 2006, pp.289–290) that Choi's (1991) study is a significant one in regards to the development of empirical methods for capturing patterns of movement and occupation in the case of museum spaces. In his study, Choi (1991) also found that movement and occupation could be predictable from the configuration of the spatial layout of eight American museums. He proposed two opposed models according to the role of space in structuring the pattern of movement: on one hand, there would be a 'deterministic model', in which movement choices are restricted to one or just a few routes; and on the other hand, there would be a 'probabilistic model', in which visitor movement choices are not restricted to a few routes, but intertwined in many possibilities. This second model is called probabilistic because space informs the probabilities of how people will move, but it does not determine this movement (as in the first model) (Choi 1991; 1997).

Tzortzi (2007b; 2007a; 2010) builds from these studies and analytical techniques, investigating how the spatial layouts of museums affect the curatorial messages that the exhibitions aim to convey. She analyses museums in comparative pairs in order to expose particular properties and differences. For example, by comparing the Sainsbury Wing of the National Gallery[14] (in London) with the Castelvecchio Museum[15] (in Verona) she exposes how the position of objects and the spatial layout impact on the experience of the exhibitions (Tzortzi 2007b, pp.174–250). In the case of the Sainsbury Wing, the long axes of visibility maximise the visual impact of particular objects (Figure 3.04a), but the configuration of space "overrides" (as Tzortzi says) the curatorial intentions by generating patterns of movement that do not encourage exploration (Tzortzi 2007b, p.246). On the other hand, in Castelvecchio, the organisation of objects in space stimulates exploration by means of progressive fields of visibility (Figure 3.04b). The former, Tzortzi explains, results in the construction of a curatorial narrative that emphasises the individual value of each object. The later constructs a curatorial narrative that emphasises the spatial links of objects, which results "in the subordination of the objects to space, and attention shifts to rendering the museum visit an architectural experience, a spatial event" (Tzortzi 2007b, p.246). Tzortzi's contribution to the present work may be synthesised therefore in both exposing individual characteristics of each case by

14 Designed by Robert Venturi.in 1986.

15 Designed by Carlos Scarpa from 1958 to 1974.

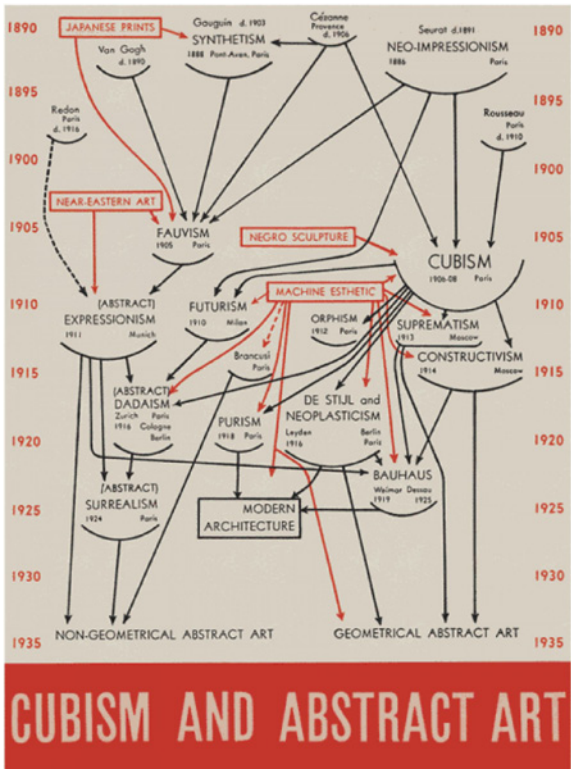
means of comparison with other cases and in attempting to link spatial experience and a programmatic narrative (in her study, the curatorial message).

This attempt is also evident in her comparative study on the Tate Gallery of Modern Art[16] (in London) and the National Museum of Modern Art, at the Centre Georges Pompidou[17] (in Paris) (Tzortzi 2007b, pp.251–348; 2010). This second comparison exposes that although both buildings share various similarities in regards to their preoccupation with the organisation of manageable and didactic sequences, their spatial structures produce significantly different visiting cultures. While in the Tate Modern, space restricts the narrative to one possibility of visiting sequence, in the Pompidou, space induces exploration of both objects and other people. The study then concludes that this difference underpins a fundamental opposition between a theoretical organisation of objects and a spatial experience (and organisation) of objects. For Tzortzi (2010, p.137), it follows that the experience of the Tate Modern is "intellectual rather than spatial or visual", as the "sense of discovery is transposed from space to the reading of works". By contrast, at the Pompidou, space is the "means to express the intended message and contribute to the perceptual organisation of the gallery" (2010, p.137).

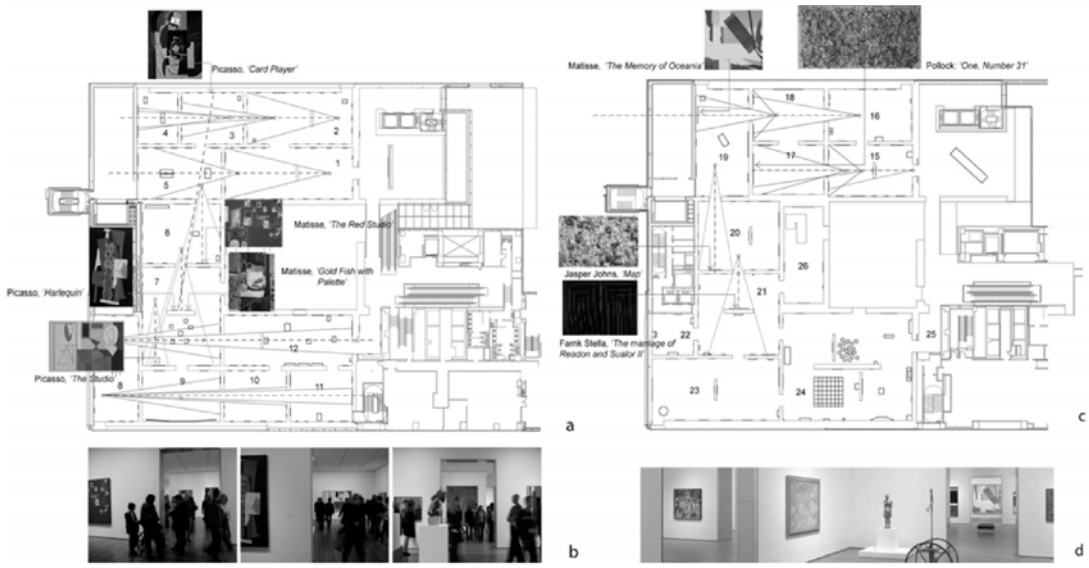
This opposition – between intellectual (or conceptual) and spatial organisations of art objects – becomes even more interesting when we consider the case of the Museum of Modern Art (MoMA) in New York, studied by Psarra (Psarra et al. 2007; Psarra 2009, pp.184–210). She explains that the MoMA embeds the intention to construct a comprehensive narrative of the history of modern art and its complex movements. The origins of the curatorial strategies in MoMA are linked to its first director, Alfred Barr, who "conceived a comprehensive collection affording a synoptic overview of modern art" (Psarra 2009, p.197). He had an intention to organise the collection into an evolutionary classification of art movements, which is clearly illustrated by his flowchart for the catalogue of the exhibition "Cubism and Abstract Art" (Figure 3.05a). Barr proposed two main currents of modern art, which could be synthesised in the opposition between "a 'rational' one descending from Cezanne and an 'irrational' one stemming from fauvism" (Psarra 2009, p.215). Psarra (2009, p.198)

16 Mostly known as 'Tate Modern' only. It was designed by Herzog and De Meuron between 1995 and 2000.

17 Designed by Renzo Piano and Richard Rogers between 1972 and 1977.



(a)



(b)

Figure 3.05: (a) Flowchart by Alfred Barr that featured in the original catalogue of the exhibition "Cubism and Abstract Art" (1946) in the Museum of Modern Art in New York. (b) Psarra's analysis of MoMA's fifth and fourth floors after the latest expansion in 2004, exposing the visual links between paintings, which encourage unexpected visual relations. (Source: Psarra et al. 2007).

shows that in Barr's exhibition of 1964 the floor layouts of the MoMA were used to convey this historical evolution, as the sequence of rooms formed stylistic chapters that constructed a chronological narrative of the collection. In other words, since its origins and throughout its history, the MoMA intends to translate to space an intellectual organisation of art objects. Psarra then investigated how MoMA's new gallery layout (considering the latest building expansion in 2004)[18] affected this intention, exploring how the visitors experienced the Museum and its collection. Her study pursued to understand how the real behaviour of visitors[19] relates to the curatorial message of the museum, and especially what is the role of space in this relationship. Using axial analysis and visual integration as parameters to measure how spatial configuration influences on visitors' use of the museum, it is shown that, although the museum offers a very clear curatorial narrative (which remains historical and stylistic as Barr proposed), other possible narratives can be construed through exploration. Psarra explains that there are three strategies that constructs the multiple narratives of the museum (2009, p.204): "first, a main sequence that intersects with secondary galleries generating circuits of movement; second, exemplars of opposite art strands separated into different rooms, but also interlaced into one space; third, open visual relations that integrate these strands from distance". Psarra explains that the new gallery layout moves away from the dialectical argument of Barr's original classification of modernist art, as the two currents (that he proposed) are "spatially interweaved [and] flow through the enfilade of rooms in serpentine movements, twisting with gaps and cancellations, interrupting each other then assuming their course until the next intermission" (Psarra 2009, p.203). In this sense, for Psarra, "the new display strategy questions the old distinctions between opposites like formality and irregularity, idealism and realism" (Psarra 2009, p.203), as visitors may form alternative narratives through intervisibility between different styles and art periods (Figure 3.05b). Psarra concludes that the MoMA embeds, in this sense, an intentional ambiguity[20] between

18 Psarra explains that the MoMA, which was established in 1929, has undergone seven expansions since its construction in 1939. The last one happened in 2004, which intended to unify all the functions of the museum and emphasise its role to the city.

19 She captured the patterns of movement and use of the museum through empirical observations.

20 In fact, Psarra proposes that the MoMA constructs three main ambiguities, which are "based first on the tension between two competing cores of centrality and the diagonal accent of integration; second, on the main gallery sequence and the smaller rings of circulation; third, on the didactic message in the galleries and the blurring of classification contents diluting this message" (Psarra 2009, p.216).

offering both didactic and explorative approaches to exhibitions, which arises from the duality of its historical legacy and its progressive character (Psarra 2009, p.216).

One aspect that becomes evident from the studies conducted by both Tzortzi and Psarra is the role of intervisibility between spaces, objects and people in museums for the construction of curatorial narratives. This role is also explored by Peponis in a number of studies (e.g. Peponis et al. 2003; Wineman & Peponis 2009; Lu & Peponis 2013). Among these studies is Peponis and Wineman's (Peponis et al. 2003; Wineman & Peponis 2009) one that explores how open layouts of exhibition influence visitors exploration. They investigate how visibility and intervisibility between exhibited objects affect the likelihood that visitors engage with them (stop to observe them). They show that visitors tend to comprehend visually connected thematic groupings of objects and tend to construct their visit following the exhibit elements within these groupings. They also show that the more accessible an object is, the more likely it is for a visitor to engage with it. These findings suggest that the manner in which objects are arranged in space impacts significantly in the patter of movement, even in open plan configurations. Another study that arrive at similar conclusions is the one conducted by Lu and Peponis (2013). They add to these findings by investigating whether visitors who move through exhibitions are aware of the affordances of the intervisibility of displays arranged in space and whether intervisibility affect the way in which displays are compared and related in the mind. They studied these questions through simulated 3D environments where forty-two subjects were requested to virtually navigate four exhibition settings in which a few works of Maurits Cornelis Escher were virtually displayed. Subjects were requested to complete a questionnaire during the study and the results of their movements in the virtual space together with their cognitive comprehension of the work of Escher were then contrasted with the analysis of visual integration and links of intervisibility between art-works. Their study shows that exhibition visitors are indeed sensible to patterns of display intervisibility, which is a finding that, as they say, highlights the importance of studies such as the one conducted by Psarra about the MoMA. Considering the case of public libraries, one could add that these findings also highlight the importance of studies such as the one conducted by Zook and Bafna (2012). In the Seattle Public Library, as the authors showed, intervisibility between different kinds of users could generate distinct 'senses of publicness', potentially influencing how visitors see their role in space and in social practices.

In other words, the findings and discussions brought by this selection of key studies on museums are highly valuable for the case of public libraries. In particular, one may highlight three main elements that the reviewed studies often interrelate: space, programme and use. Space is often analysed both as a configuration of possible routes and as a configuration of intervisible rooms, objects and curatorial themes. Programme is often seen not only as the functional operation of the museum, but also as a conceptual message and a curatorial intention that has social and educational implications. Use is often observed not only as a number of visitors, but also as the actual movement, interaction and engagement patterns. Understanding how these three elements interrelate will then help the construction of a methodological approach for the case of public libraries. This approach will be presented 'generically' in the section that follows and then 'specifically' for the cases of the present study in the chapter that follows.

Public libraries as space, programme and use

Indeed, the questions raised about the public library in the previous chapters refer to three aspects of space: function, programme (or purpose) and use (or activity), all of which are often used interchangeably as though they are about the same thing. This misunderstanding might be explained by the fact that the boundaries of their definitions smoothly fade into one another. Space syntax theory may help clarifying their differences.

Outlining three main scales of space syntax analysis, Hillier (1996) exposes the differences between these three aspects. He explains that this analysis is about "first investigating space as a pattern in itself, then analysing its relationship to the distribution of categories and labels (non-interchangeabilities), then systematically observing its use" (Hillier 1996, p.194). The first analysis leads to the idea of '*generic function*', a set of basic functional probabilities that the topological properties of the layout of space already present (Hillier 1996, pp.247–255). Hillier suggests that, if we disregard our cultural knowledge about architecture to observe how we *use* space, then we would be able to understand that this physical presence in space is about (or even *requires*) three generic functions: being able "to occupy space, to move about between spaces and to find buildings intelligible" (1996, p.258). As I have briefly

revised above, he explains that spaces in a complex already present a potential or *probable* generic function according to their topological differences, and even without any programmatic or cultural description related to them (1996, pp.304–305).

The second analysis takes into consideration the distribution of activities and their relationship to the spatial organisation. This analysis leads to the description of the interfaces between users, especially how long this description is (i.e. by specifying a large rule set of activities, interfaces and their spatial realisation) and the extent to which it is embedded in space. This second type of analysis underpins the formulation in space syntax literature (Hillier et al. 1984; Hillier 1996) that there are 'strongly' and 'weakly' programmed' buildings. These terms will be described and discussed in greater detail in the section that follows. The notion of the programme in space syntax terms refers, therefore, not only to the labels of activities in space (which is the conventional definition of programme) but also to the spatial description of social interfaces between people. The interface between students and teachers in a school for example, depends on various labels such as "classroom" as well as to the position of the classroom in relation to spaces for circulation and those spaces occupied by teachers.

The third and last type of analysis refers to the empirical observations of the types of actual activities and the ways in which they take place in space. This type of analysis is fundamental for understanding the influence of the first two variables – the social probabilities and affordances of configurational characteristics of space and the programmatic descriptions of activities and interfaces – on the actual activities (Hillier et al. 1996; Hillier 1996).

This methodology in three steps of analysis is largely used by space syntax research. As we have also seen in the case of museums, it emphasises the position of spatial patterns in relation to use (e.g. Peatross & Peponis 1995; Hillier et al. 1996; Penn et al. 1999; Koch 2004; Psarra 2009) and in relation to programme (e.g. Amorim 1997; Koch 2004; Orellana 2012; Psarra et al. 2007). Some recent works (e.g. Psarra 2009; Psarra et al. 2007; Sailer 2007; Koch & Steen 2012; Orellana 2012) contribute to this methodology by focusing on the relation between programme and use. They focus on how programme influences users' movement by working as an attractor

(Sailer 2007); how different patterns of movement create particular spatial cultures (Koch & Steen 2012); and how the precise or imprecise definition of activities in time create different patters of use (Orellana 2012).

Strongly or weakly programmed libraries?

In general, space syntax research considers the notion of programme as constraining the relationships between space and use. This means that, whenever there is no programme, use will probably follow the configurative laws of space (Hillier 1996; Hillier et al. 1984). As I have argued, this idea starts with the problem that in buildings, in contrast to public urban spaces (Hillier et al. 1993), there is a predefined structure of how activities and interactions should take place, before the very act of inhabitation. This descriptive model can be very detailed or very short, an aspect that influences the extent to which a programme can transform the configurational potential of a building in creating movement and occupation patterns (Hillier & Penn 1991). This suggests the definition of two opposed building types: strongly and weakly programmed buildings (Hillier et al. 1984; Hillier 1996). A strongly programmed building (Hillier 1996, pp.196–198) is the type that presents a very detailed and long description of interfaces and activities: almost everything that happens in the building is previously determined and, therefore, this type strongly conserves social practices. A weakly programmed building (Hillier 1996, pp.199–201), on the other hand, is the type that presents a non-detailed description of interfaces and activities, where Hillier suggests the idea of "all-play-all interface", whose movements "reflect the pattern of routes from all points to all other points" (1996, p.201), resembling therefore a public urban system. This second type can be considered as generative of social relations and practices as it overlays different social groups and practices, which enables the emergence of spontaneous and unprogrammed interfaces and activities – that is, interfaces that might not exist without this generative capacity of the spatial milieu (1996, pp.201, 255).

Hanson (1996) exposes the importance of the relation between programme and space in a study about the English law court building. She analyses the differences of use in the courtrooms and in the "unprogrammed corridors" that lead to them, observing that the latter are often the real spaces of negotiation – as they don't

reinforce the strong segregation of interfaces between the actors of a trial. Hansons' main contribution is in showing that the courtrooms are strongly programmed whereas the back of stage part of the building is weakly programmed. Therefore, the court building is neither strictly strongly nor weakly programmed. Her study also demonstrates that it is not only the length of the descriptive model of interactions and interfaces which is the aspect that informs if use is strongly or weakly programmed. Space plays an important role in the examination of this categorisation, especially if it is reinforcing the separation between sectors of a programme (Hanson 1996; Amorim 1997) or weakening these sectors by overlaying them in the same space (Capillé & Psarra 2014).

Therefore, one may distinguish two main definitions of programme: firstly, there is "programme" as the description of activities of an organisation. Secondly, one may see programme as the distribution of such description in space. The first definition exposes the conceptual or *transpatial* (Hillier 1996) aspect of programme, whereas the second exposes the *spatial* aspect of it. In the case of public libraries, the questions may be formulated as follows: how the changes currently happening in the *transpatial* programmatic descriptions of library buildings are embedded in their *spatial* structure, and particularly how the libraries combine weak and strong aspects of programme (both transpatially and spatially defined)? Are the internet and the wide range of activities that libraries are introducing in their premises (e.g. cafes, studios, meeting spaces, 'maker spaces') turning this building type into a 'weakly programmed building' (in the transpatial sense of the term) from the point of view of widening the range of programmes housed in libraries? How these buildings combine strong aspects of the programme (control, security, quiet reading, etc.) with an increasing range of weakly controlled public programmes?

Furthermore, I might suggest that, on the one hand, there is the institutionally programmed informality of cafes and studios. On the other hand, there is the informality that comes from the unprogrammed interfaces between different activities, which can be seen as a spatially produced informality. Understanding how these two kinds of informality are distributed in the Library-Parks might inform us about how they perform their roles as (a) institutional organisers of social relations and as (b) providers of space for emergence of communities based on self-organised social structures.

3.3. Conclusion

In this chapter I reviewed firstly the methods used by the broader literature about public libraries and secondly how the specific space syntax literature studies the case of museums. In the case of public libraries, the studies that do analyse spatial aspects of the buildings are not from librarianship field. However, they do not focus on the current organisational shift on offering public space more than organising knowledge in libraries. Rather, they address issues of access and structure of knowledge (e.g. Koch 2004) and way finding (e.g. Conroy Dalton 2001; Mandel 2010). Little has been advanced in understanding the 'publicness' of public libraries – and perhaps the only study that starts to address this issue is the one carried out by Zook and Bafna (2012). Their work, however, is about a single building (the Seattle Public Library, by OMA) and therefore there are significant limitations in regards to the extensions of their results to understand other public libraries. Nevertheless, the methods that they use to capture the 'publicness' of these buildings could be applicable to other libraries.

The review of space syntax theory and methods opens a possibility to bridge this gap. The studies on museums provide a collection of methods that could be applied to the case of public libraries. After having synthesised their approaches into three steps of analysis – which consider the interrelation between space, programme and use – I shall move to a pilot study conducted in London (in the next chapter), which served to develop and test the methods for the case of public libraries and in regards to the questions raised by this research.

Chapter 4
Pilot study and Procedures of Analysis for the cases of Medellín

In order to test the methods used in the Medellín cases, a pilot study on two libraries in London was carried out. Through this study, it was possible to explore tools of spatial analysis, especially from space syntax research. The study also exposed what kinds of limitations in data collection the research could face, particularly in relation to the definition of kinds of users in public libraries through observations on site. Finally, this study also presented some early discussions about the relationship between social practices and architectural characteristics of public libraries.

The pilot study investigated on the Kensington Central Library (KCL, 1960) designed by Vincent Harris, a 'classicist' architect; and Swiss Cottage Library (SCL, 1964) designed by Sir Basil Spence, which is a modernist building (Figure 4.01). The questions studied through these libraries were: firstly, how the conflicting transformations that public libraries are facing are manifested in space and social practices? Secondly, how do weak and strong programme aspects of these buildings influence their day-to-day functioning? Finally: what is the role of the space of these libraries in influencing the strengthening or weakening of the boundaries between programmatic categories of activities?

It is argued that although both libraries are similar in scale and programmatic description, they have a crucial difference: their spatial structure. This difference exposed the influence of the *spatial* manifestation of programme on the *transpatial* definition of programme. The combination of the *position* of activities in the spatial layout and the *length* of the description of such activities are pointed as fundamental aspects to be observed regarding the influence of programme in the actual use of space – especially the potential in generating unprogrammed social encounters. It is found that the KCL leans towards the strong and formal end of this programmatic typology, being a library of an academic character. The SCL on the other hand,

intensifies the informal and weakly structured aspects of this typology, functioning as a library-community centre.

After discussing the key findings brought by the pilot study, the chapter then describes the procedures of analysis for the cases of Medellín. These procedures took into consideration the experiences brought by the pilot study and the discussions carried out in the previous chapter.

4.1. Pilot study: planned informality

The study builds a detailed picture of SCL and KCL using the following methods: firstly, spatial analysis of the layout using VGA analysis, convex analysis and J-Graphs; secondly, collection of empirical data of user activity (during 3 working days and 2 weekend days). Thirdly, statistical analyses of spatial variables with use rates. The empirical data collected concern snapshot studies of different types of activity and occupation, movement flows at thresholds and entrances and traces of peoples' paths in the library. These methods of analysis were organised in three kinds of comparisons between the two libraries: Space-Programme, Space-Use and Programme-Use.

Both case studies are public libraries in London and coordinated by their Councils (Figure 4.01). KCL is part of the Royal Borough of Kensington and Chelsea, while the SCL is under the coordination of the London Borough of Camden. Both were built in the same period (1960 and 1964, respectively) and are listed buildings (Grade II). KCL was designed by Vincent Harris and became listed by English Heritage, as a "remarkable and completely surviving example of Harris's post-war work in the classical 'neo Renaissance' idiom" (The National Heritage 1998). SCL was designed by Sir Basil Spence. It is described as "one of Spence's most accomplished civic buildings, and amongst the most ambitious architectural designs for a library found anywhere" (The National Heritage 1997). Although built around the same period, the two buildings present strong differences in terms of architectural ideology and style. The former is classical in its external shaping and interior configuration consisting of a main hall with a number of alcove spaces on either side. The latter has a complex "cigar-shaped plan" (as the listing process describes, The National

Figure 4.01: views of both libraries: Kensington Central on the left (external and first floor view) and Swiss Cottage on the right (external and first and second floors).

Heritage 1997) with an elliptical circulation path around a series of atria and bridges, which stretch over the voids (Figure 4.02). However, in spite of the differences along the classical-modern appearance, layout and style, both can be considered 'classical' in the sense of the long central axis that covers their plan from side to side and symmetrical layout. In Kensington Central this axis structures not only the geometry of the plan but also a long visual field and movement. In Swiss Cottage, the axis is

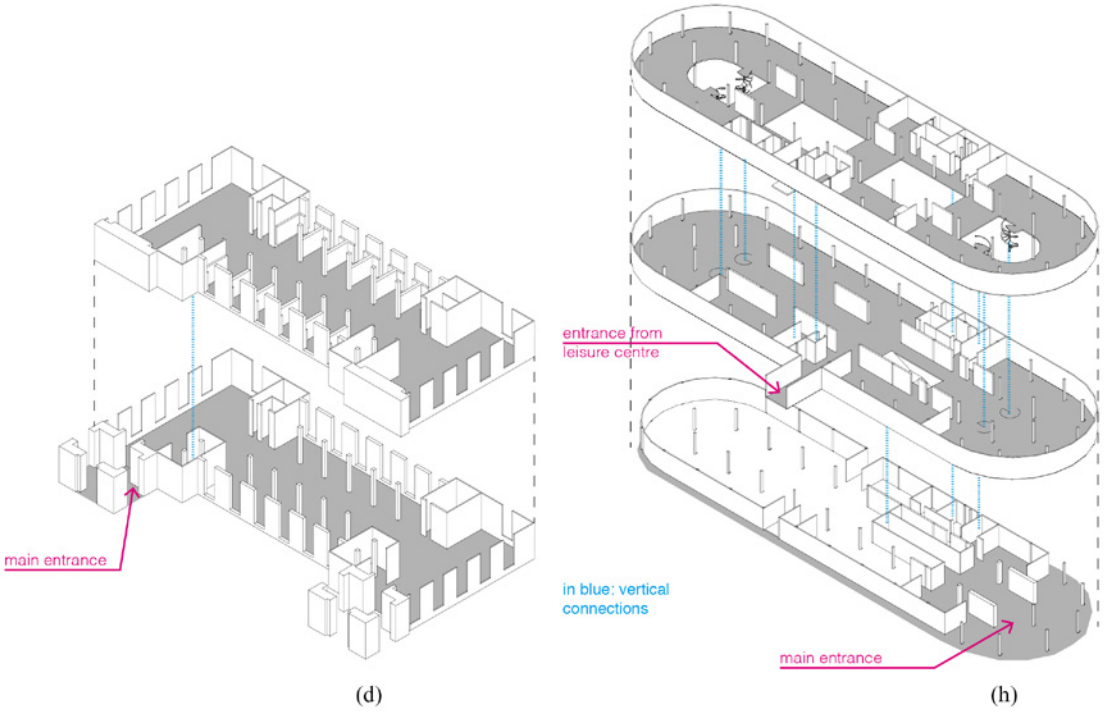


Figure 4.02: entrances and vertical connections: Kensington Central on the left and Swiss Cottage on the right.

emptied of occupation on the second floor working only as a geometrical and visual link connecting bridges and voids. The Kensington Central Library is currently being evaluated for an upgrade in its infrastructure, public and operational spaces (Royal Borough of Kensington and Chelsea Cabinet 2012; Wilson 2010). The Swiss Cottage Library was remodelled in 2000-2003, when a Leisure Centre was built in its neighbouring site (creating a new entrance that connects directly to its first floor atrium). This refurbishment included a considerable transformation of its interior. Although the detailed study of these changes might be of great interest, it was not the focus of this study, which considered only the present plan and programme of both libraries (which, for instance, includes the computer rooms that couldn't be designed by the time the libraries were built).

Space and Programme

The first type of analysis focused on understanding how the programmes of the two libraries are distributed in their space (Figures 4.03 and 4.04). This was studied through the comparison of the justified graphs of the two libraries (Figure

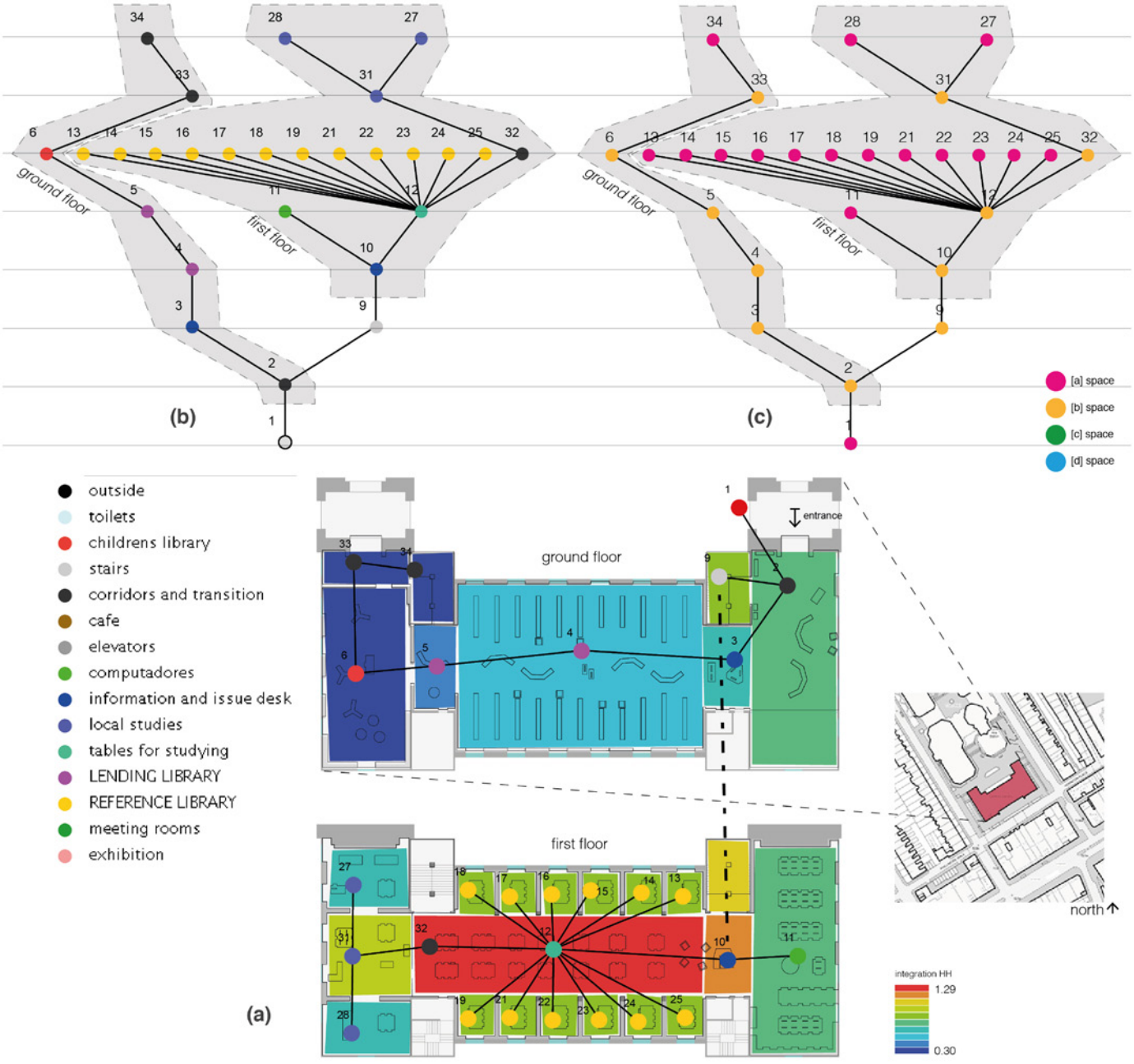


Figure 4.03: Kensington Central Library's (a) convex integration HH with programmes (circles); (b) J-Graph with programmes; (c) J-Graph with topological spaces (Hillier, 1996)

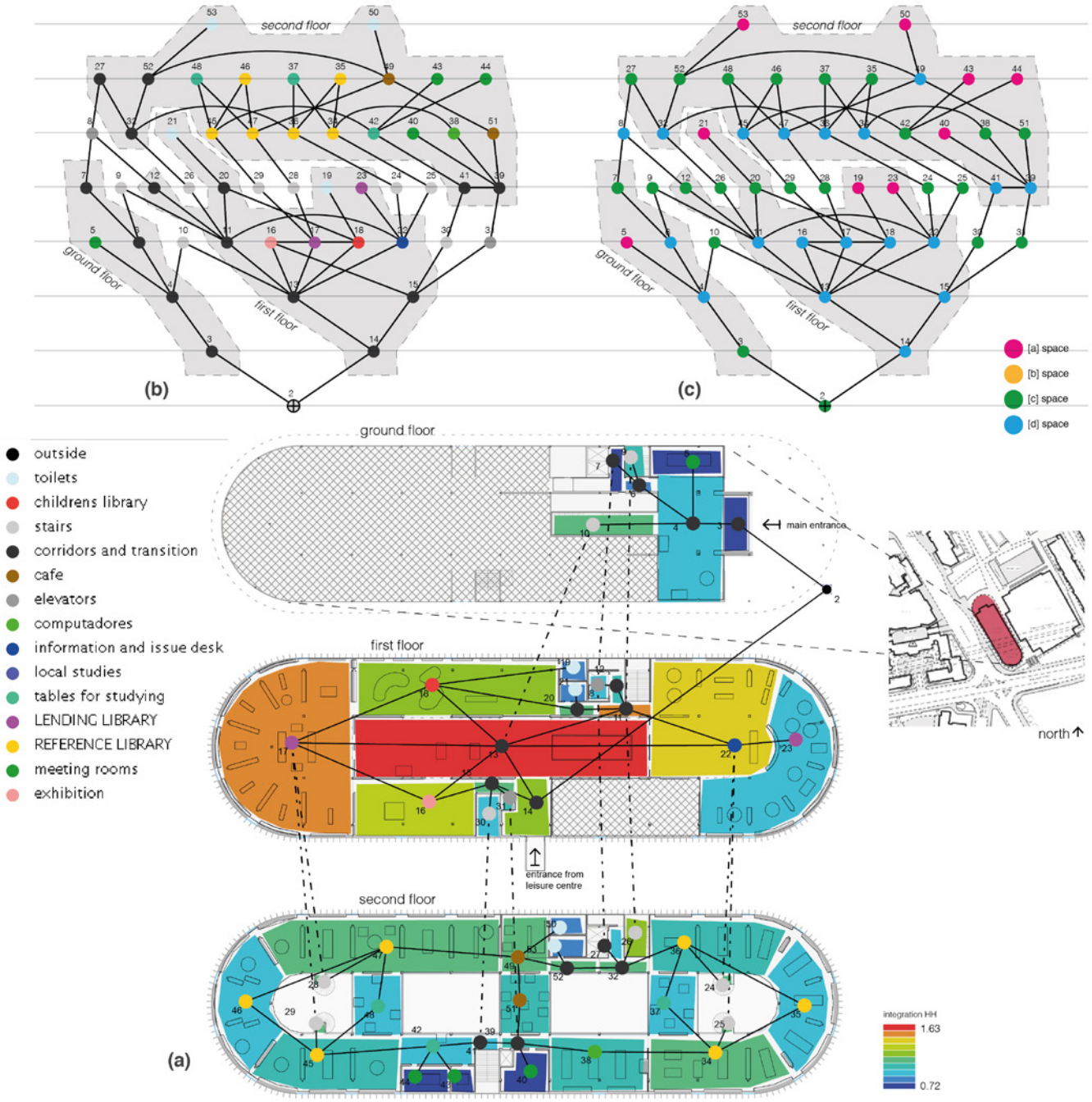


Figure 4.04: Swiss Cottage Library's (a) convex integration HH with programmes (circles); (b) J-Graph with programmes; (J-Graph with topological spaces (Hillier, 1996)

4.03b, 4.03c). These graphs are coloured firstly according to the programme of each space (Figures 4.03b and 4.04b), and secondly according to their topological type as [a], [b], [c], and [d] spaces[1] (Figures 4.03c and 4.04c). The justified graph of the KCL shows that it consists of [a] and [b] types of spaces only, i.e. the graph resembles a tree. Looking at the programmatic labels of these spaces, we see that there is a clear division of the building into two separate floors in terms of content, influencing the purpose and character of the visit. The ground floor houses the lending library and the children's library, while the first floor accommodates the computer room, the reference library and a section housing material on 'local studies'. To access any of these programmatic sections, the user necessarily has to pass through one of the two information spaces/issue desks. The children's library, reference library, computer room, and local studies area are all dead-end spaces ([a]-type spaces), which means that these sections function as destinations only. Thus aside to a correspondence model between programmatic labels and floors, there is a hierarchical organisation of access to the various sections of the library.

The SCL is not divided according to programmatic labels and lending versus reference content, but to thematic organisation of contents: one of the extremities of the building (Figure 4.04a, left side of first and second floors) contains books in the category of 'Arts', while the other one those under the subject of 'Science'. A significant difference between the two buildings emerges at this point. The KCL uses the vertical division of the building to separate reference from lending books. The SCL on the other hand, uses the horizontal division of the plan to separate science from art, but mixes the other two categories through the visual and acoustic connection of the void between them. The majority of spaces are [c] or [d] types showing that the building is ringy and multi-permeable like an urban street network (Hillier et al. 1993). This means that almost all spaces (82%) allow through movement. The programmatic spaces that in KCL were functioning as to-movement spaces play a completely different function in SCL. In the latter, the children's library is a [d]-type space located in a much shallower place in relation to the entrance (3 steps, in contrast with 5 in

1 These types will be explained in detail further in this Chapter. In short, if one considers the building through its convex structure, one may note that there are spaces that have only one connection (type [a]); spaces that lead to a [a] type space, forming sequences (type [b]); spaces that are in a ring of circulation (type [c]); and spaces that are in more than one ring of circulation (type [d]). This analysis may expose whether a particular programme performs as 'to movement' [type a] or 'through movement' [type d]; or if this programme may be accessible by only one possible sequence of spaces (lying on a sequence of [type b] spaces), or by many different ways [type d].

KCL). This characteristic weakens the boundaries between this programmatic space and the other ones. Visitors who do not go *to* the children's library are likely to cross its space on their way between different programmes and spaces. In addition, children are likely to play and read in spaces adjacent to their library. The same phenomenon applies to the computer room, which lies on the way between the two sides of the reference library, breaking, therefore, the programmatic divisions between reference library and computer room (Figure 4.03b-c).

These differences between the two libraries remind us of Robin Evans' study of Renaissance Italian villas and 19th Century English houses (1997, 55–91). In this study, Evans compares the 19th Century English houses with corridor, where a convenient room had only one door, with the 16th Century Italian villas, where "a convenient room had many doors" (Evans 1997, 64). The 19th Century English houses separated two different circulation systems. One system linked the enfilade rooms used by the household owners. The other one connected the global system of movement with these rooms and was used by the servants. On the one hand, this system enhances the sense of concentration and intimacy of each room. On the other, it separates two social categories of people eliminating their accidental encounters (Evans 1997, 75). Although libraries are different from domestic interiors, one may observe interesting analogies. Like the 19th Century English house, the spatial layout of KCL emphasises the specificity and seclusion of programmes, especially by differentiating them from the spaces of through movement. Like the 16th Century villa, the spatial layout of SCL presents spaces with various connections to other rooms. This pattern weakens the boundaries between different programmes and enhances the idea of gregariousness through all spaces.

Another aspect concerns the distribution of programme in space in relation to the convex integration analysis (Figures 4.03a and 4.04a). In KCL, the space with the highest value of integration (1.29) is the main study place, where the furnishing (tables and chairs) suggests a very specific use (Figure 4.02c). On the other hand, in SCL, the highest value of integration (1.63) is found in a multipurpose atrium space, where no actual activity is *spatially* programmed. This space houses a range of events (e.g. Tai Chi classes, Figure 4.02g) which concur with movement of visitors from one space to the other and the exploration activities of children in spaces that are contiguous to the children's library.

Space and Use

The second type of analysis focuses on the patterns of occupation and movement in both libraries. Through the on site observations the following activities were identified: reading, studying, working, playing, searching, relaxing, walking, meeting, and eating (Figures 4.05, 4.06)[2]. These activities were analysed through "snapshot", "gate count" and "tracing" observations (Figures 4.05, 4.06)[3].

In the KCL, based on tracing observation of 30 people paths for each library, we see that movement based on the tracing study follows four patterns (Figure 4.05b). Firstly, one group of people (20%) enters the building, crosses the lending library and goes to the children's library. Secondly, 36% of visitors go straight to the second floor and either search for a place to sit and study (generally with their own book, computer or other material) or go to the computer room. Thirdly, 17% of visitors enter the building, explore its space and leave without searching for books or sitting to study. Finally, 27% use mainly the ground floor exploring the space between bookshelves of the lending library. This last pattern refers mainly to the activity of "searching", which has a high rate in the lending library (35% of all people observed "searching"[4]).

In the SCL, movement traces are concentrated on the first floor, especially in the atrium space, which has connections with both entrances to the Library (Figure 4.03)[5]. The four patterns of movement observed in the KCL occur in the SCL as well, but take place in a completely different way (Figure 4.05b). In SCL, visitors searching for books to borrow (23%) cross the space of the children's library. Those who enter the building in order to study or work (30% - in the computer room, reference library or the cafe) cross with the paths of those who go to the children's library and those who browse in the lending library. Finally, those visitors who enter to explore the library space without searching for books or performing any static activity (17%) also use the same spaces as the other groups. This intersection and concentration

2 Nine types of activity observed: a)'Reading': only with reading material (book, magazine or newspaper); b)'Studying': with reading material and notebook or computer; c)'Working': only with computer; d)'Playing'; e)'Searching': for reading material; f)'Relaxing': without any reading or visible action or interaction; g)'Walking'; h)'Meeting': without reading material and interacting; i)'Eating'.

3 On average, 106 people were observed per snapshot in KCL. "Working" is the most common activity in this library, representing 30% of all activities. This rate is followed by "studying" (20%), "moving" (18%), "reading" (13%), "searching" (9%), "playing" (4%), "relaxing" (3%) and "meeting" (1%). Regarding SCL, on average, 207 people were observed per snapshot. "Studying" is the most frequent activity (30%), followed by "moving" (18%), "working" (16%), reading (9%), "playing" (7%), "meeting" (7%), "searching" (5%), "eating" (3%) and "relaxing" (3%).

4 Based on all snapshots observations.

5 The entrance from the Leisure Centre is responsible for 40% of visitors to the Library. Although this factor might explain why the SCL works like a "library-community centre", it does not explain how it *spatially* creates such environment.

of movement paths might be one of the factors that explain the higher rate of social interaction in SCL in comparison with KCL. In the former, 31% of the people observed in all snapshots were involved in interactions, while the rate of interaction in the second library was 16%. In the KCL, 40% of interactions take place inside the children's library. These interactions are mainly related to children playing or adults reading with children. If one disregards these types of interaction as not generated by space but as part of the transpatial description of this programme, the percentage of people involved in interaction in the entire building drops to 9.7%. These interactions are much quieter exchanges between people (in comparison with those that happen in the children's library)[6]. This behavioural pattern is highly encouraged by the administration of the library, which uses a sign in each sitting place of the reference library to request users to be quiet. The rates of interactions in the two libraries is also influenced by the average floor area per person. In KCL, the average is 21sqm per person, while in SCL this average is 14sqm. This aspect enhances the sense of concentration and intimacy observed in the use of space of the former.

In the SCL, interactions take place in all spaces forming three main patterns. Firstly, 35% of all interactions happen between sitting people (mainly in the lending and reference libraries, and in the cafe). A second pattern refers to interactions between children playing together (25%), which takes place in more spaces than only the children's library (e.g. lending and reference libraries, and exhibition room). A third pattern of interactions refers to people chatting in the corridors (22%). These interactions spread throughout the Library turning the building to a socially very active environment.

As both buildings are highly intelligible[7] (Figures 4.05g, 4.06g), the differences in their movement patterns are not related to difficulties in understanding the location of activities. However, there are fundamental differences in movement patterns between both libraries, which might be influenced by their spatial differences. For instance, if one observes the pattern of movement of those visitors who explore the buildings' spaces for a while and then leave (yellow paths in Figures 4.05b and 4.06b) it is possible to observe interesting differences between both buildings. In SCL, this

6 It is worth noting that the children's library of Kensington Central Library is placed in very segregated space, while in Swiss Cottage Library the children library is directly connected to the integration core of the main floor of the building.

7 Space syntax measures are explained further in this chapter, which includes a description of how intelligibility is calculated.

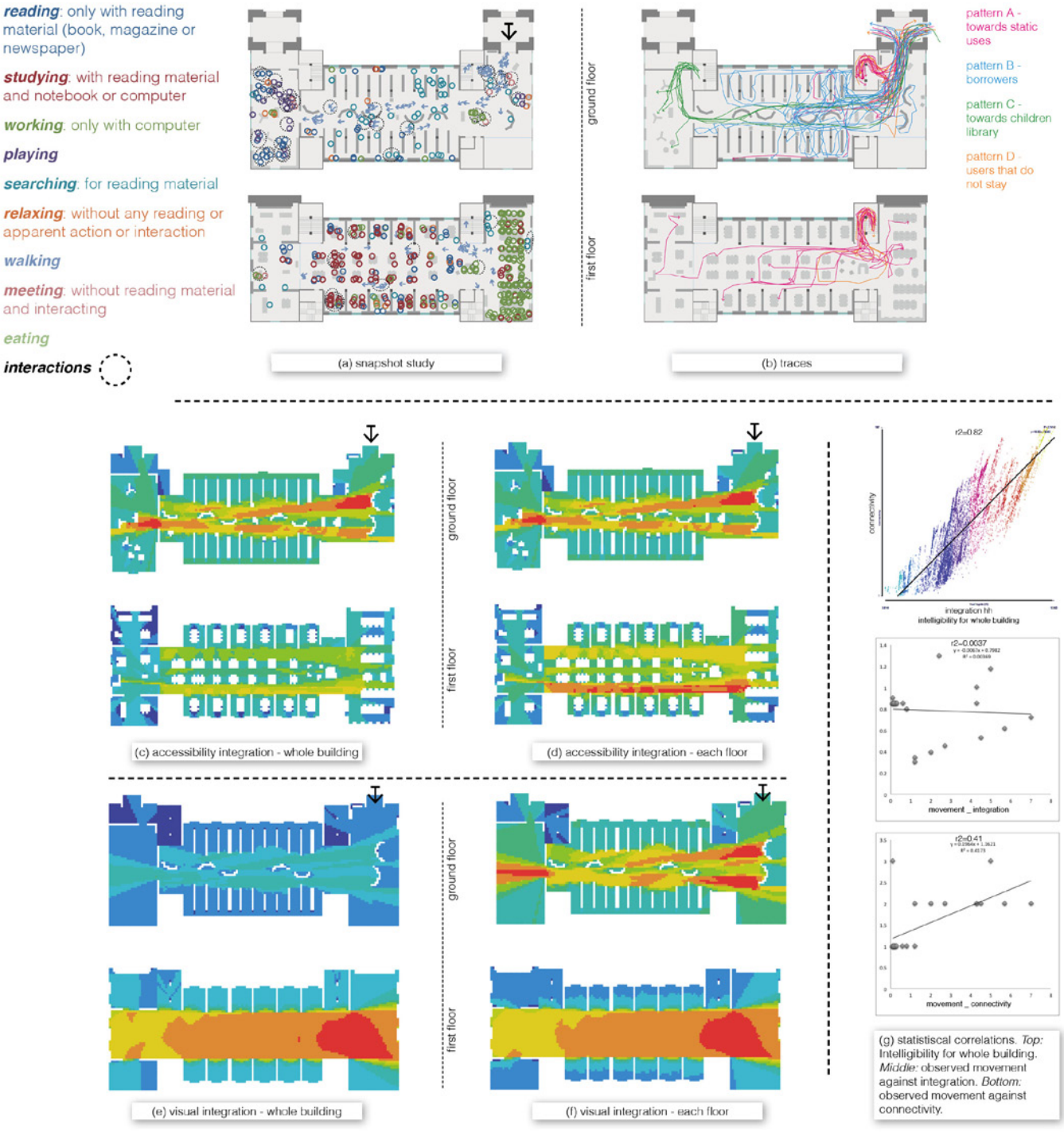


Figure 4.05: Space and use analysis of Kensington Central Library.

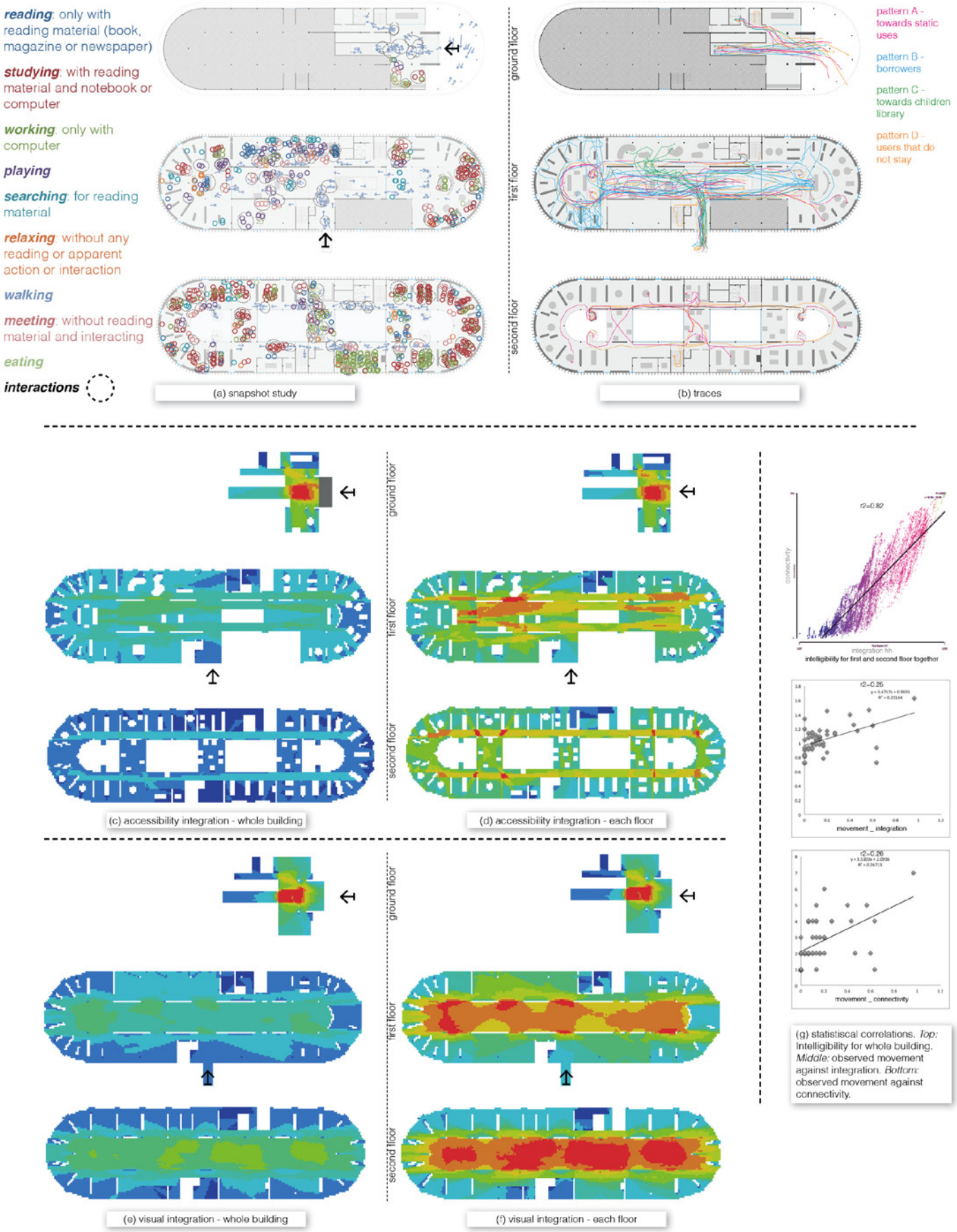


Figure 4.06: Space and use analysis of Swiss Cottage Library.

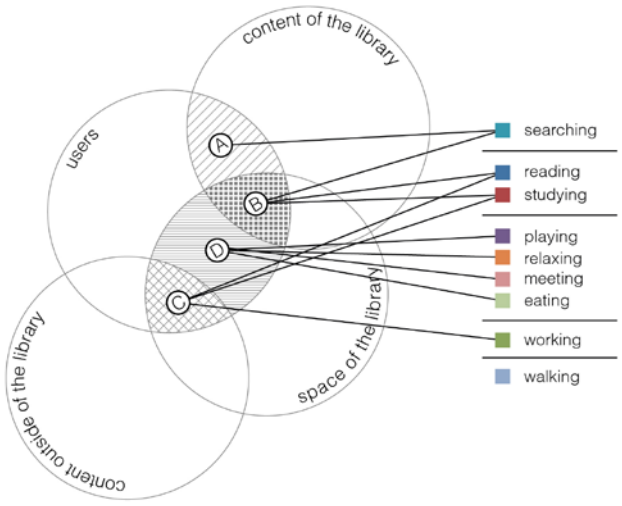


Figure 4.07: diagram representing the association of the types of activities observed in the library and the different purposes of the library (from Figure 2.05, in chapter 2).

group explores the library by entering in spaces of programmed activities. In KCL, the same group visits only spaces designated as information/issue desk, covering 20% the length covered by the same group in SCL. This might be explained by the fact that in KCL, right from the entrance, one has a panoptic understanding of the whole building plan. This can be seen by the comparison between VGA analyses (Figures 4.05c, 4.05d, e and 4.05f), where accessibility integration and visual integration overlay in the same space, i.e. integration picks up the differentiation between circulation and occupation. On the other hand, when entering the SCL, one has to walk through the building to understand how activities take place. This movement occurs in the highly accessible areas (which do not correspond to the highly visible), which penetrates the spaces of specific programmes.

If one organises the types of activities (reading, studying, etc.) according to the four purposes of the library (Figure 4.07), one might be able to see fundamental differences between how the two buildings are being used. These concern the activities that do not make use of the educational content offered by the library or even from outside of it (represented in Figure 4.07 as purpose "D", which is associated to the activities "playing", "relaxing", "meeting", and "eating"). These are the weakly programmed activities, in the sense that they transpatially imply an unpredicted use of space. In the KCL, these activities represent together 7% of all activities. On the other hand, in the SCL, they sum 21%. In both libraries, reading and studying

represent one third of all activities. However, these activities are distributed in completely different ways in the two buildings. In the KCL, reading and studying is highly concentrated in the reference library (Figure 4.05a); whereas in SCL, these activities take place throughout the entire building (Figure 4.06a).

In summary, these findings indicate that KCL offers a more intimate environment for focused learning than that provided by the SCL. The first library strongly emphasises the "core" and traditional activities of libraries, creating spatial boundaries, establishing behavioural rules and facilitating use patterns that separate core activities from others. On the other hand, the SCL distributes the diverse activities in space in a more homogeneous way, where the probability of finding people reading is almost the same as finding people meeting. The former is a formal library of the traditional kind, keeping social interaction away from the focused activities of studying and reading. The latter is a relaxed and informal library that by blurring the boundaries between formal and informal learning, between learning, children playing, recreational activities and creative practice, it encourages diversity of use and social interaction.

Programme and use

In order to understand how the labelling of spaces (spatial programming) is affecting the distribution of activities (reading, studying, etc.) in the libraries, this pilot study develops a mapping system to see whether there is a correspondence between both aspects. The hypothesis is that if there is a correspondence, i.e. if the spatial distribution of activity varies according to the programmatic labelling of spaces (or programmatic areas), then one might suggest that this is an indication of a strong programme building. On the other hand, if the pattern of activity does not vary according to programmatic labels, i.e. if the rates of distribution of activities remain the same for the entire building, then one might suggest that this is an indication of a weak programme building.

This mapping system starts by calculating the average distribution of activities (studying, reading, etc.) in all the snapshot observations, for all spaces of one library. This is represented through the rate of each activity in relation to the total of all activities (Figure 4.08, bottom row for each library). Secondly, the snapshot plan is divided according to programmes. Then, each programme is analysed separately,

following the same logic of the first step, in order to calculate the average distribution of activities according to each programme. This second part is represented by all the other rows. Thirdly, the bottom row is considered as a reference, i.e. it is in relation to the pattern of distribution of activities in the entire building that one can observe the variations of activity according to programme (Figure 4.08, the white dotted lines project the rate values of the entire building). Fourthly, the variation of the rate of each activity in each programme is calculated against the rate of the correspondent activity in the entire building. This can be seen by the explanation in Figure 4.08 (indicated by the large transparent circles), which expresses the simple formula: $\Delta_i = |a_i - b_i|$, where 'i' represents "each activity"; 'a' represents the percentage of that activity in a particular programme; and 'b' represents the percentage of that activity in the entire building. These Δ_i values are used as a way to measure the variation of distribution of each activity according to programme. In order to see the average variation of rates for all activities in relation to each programme a fifth step is taken, consisting of calculating the average of Δ_i values for each programme. This can be seen in the explanation in Figure 4.08, signalised by the smaller transparent circles, which expresses the formula of the average of Δ_i:

$$(1/n).\sum_{i=1}^{n}\Delta i$$

Where 'n' represents the total number of activities. Finally, these values are used as a way to measure the average variation of activity rates per programme.

This analysis exposed a trend also observed in the other types of analysis: i.e. activities are more concentrated according to programme in the KCL in comparison with the SCL. This is especially seen in relation to the lending libraries. In the KCL, the lending library is mostly used for searching (40%) and walking (32%). In the SCL's lending library, the use pattern follows the distribution of the entire building, with an average of Δ_i of 5.5 (as opposed to 12.5 in the KCL's lending library). One sees similar patterns in relation to each value for all the other programmes (Figure 4.08, right column). This analysis also exposed that the programmatic labelling of spaces in the KCL has a strong effect on the distribution of activities that have an "informal" aspect in the transpatial description of their interfaces – especially meeting and playing. In this library, these two activities are strongly concentrated in specific programmatic

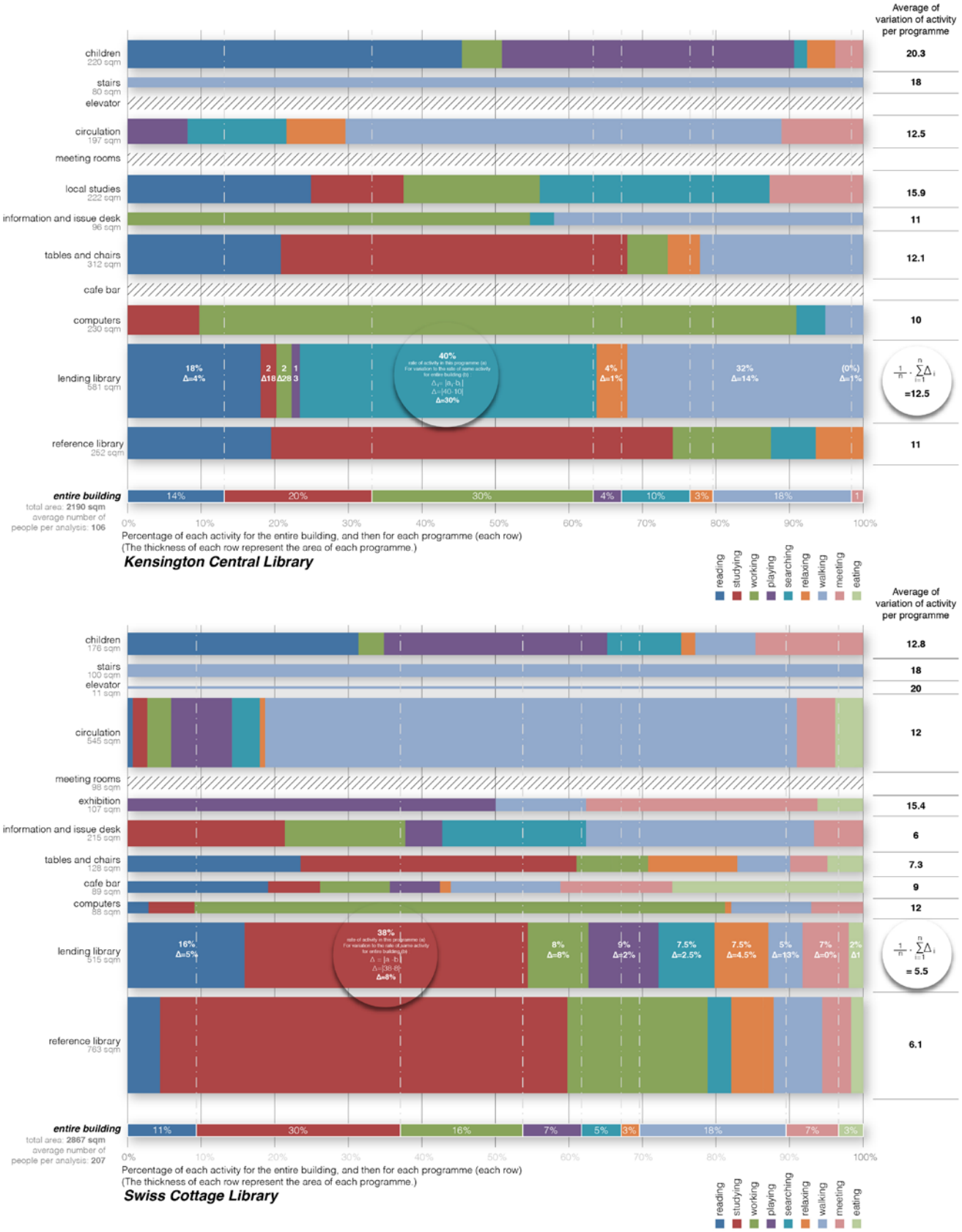


Figure 4.08: Programme and use analysis of both libraries.

areas. If one defines potentiality and the generative dimensions of space as the possibility of space to afford social encounters, activities and co-presence in diversity, rates, types and scales other than those initially intended (by users or organisations), this study captures the generative potential of space based on the above method. It is proposed that future research should further develop such methods so as to arrive at more precise definitions of strong and weak programme buildings.

Conclusion: strong and weak programme as a spatial and transpatial relationship

The pilot study builds from the notion of programme as a transpatial and spatial manifestation. The transpatial aspect defines purposes, activities and roles for different groups of people. In this sense, programme can be understood as a social script. The spatial dimensions of programme refer to the ways in which this social script is embedded in space through a pattern of distribution, affordances and labelling. Programme can have a strong influence on the actual use of space through both its spatial and transpatial aspects. However, these two kinds of aspects differ in how they can perform such influence. As previously discussed in Chapter 3, transpatially defined programme has a strong influence on use when it has a long definition of roles and activities between groups of people. On the other hand, programme as a spatial manifestation has a strong influence on use through the *position* of labels and affordances in the spatial configuration.

Therefore, the combinations of these two aspects of programme affect the definition of the categorisation of a building as strongly or weakly programmed. If one considers first the transpatial aspect of each programme in the two libraries, that is, as a script of actions in space, one may see that there are programmes that refer to a static use of space, and others that suggest an "exploratory" spatial utilisation. In a transpatial sense, "children's library" suggests an utilisation of space that is more exploratory than "reference library". Interfaces are not much defined in the first, whereas in the second, they follow a formal sequence. However, the observation of the spatial aspects of programme reveals another layer of understanding. In the SCL the programmes that suggest a "more exploratory" engagement with space are placed in a shallower position in relation to same programmes in the KCL. On the

other hand, the programmes with a "more static" utilisation of space are split in the two sides of the building. This aspect requires users to walk through the building in order to reach the stacks and reading areas. This movement overlaps with other types of movement and activity, as the long axes that stretch from side to side intersect with axes along the other direction, forming rings of circulation ([d]-type spaces) that mix different categories of users along the same circulation system. Therefore, *through the spatial positioning of programme*, the SCL is weakening the influence of the transpatially strong programmes on the actual use of the building.

In the KCL, the distribution of programmes is completely different. Spaces in the library are connected through two trips (formed by [a] and [b]-type spaces), and the rings of circulation around tables are trivial covering the same programmatic spaces (Figure 3a). In a spatial system formed mainly by [b]-type spaces, moving and occupying space have a strong functional sequence (Hillier 1996, 254). Therefore, the position of the transpatially-defined programmes in a spatially sequential order characterises a *spatially* strong programming. In KCL, this sequence is used to conserve the "original" purposes of a library.

Therefore, I might suggest that the categorisation of a building as strongly or weakly programmed depends on how social scripts are embedded in spatial configuration, and this relationship will influence how use, movement and interaction take place in space or otherwise spatial practice. One aspect of spatial practice is social awareness and co-presence, which as the visibility integration shows are strong in both libraries. However, the characteristics of social awareness differ completely from one library to the other. In KCL social awareness is related to groups engaging in similar activity. This characteristic enhances the sense of concentration and seclusion for each space, where learning is a programmed practice. In SCL space mixes different user groups, and through this co-presence emphasises the idea of a more informal type of social awareness. In this library, socialisation is a fundamental form of learning.

In conclusion, I suggest that it is not only the inclusion of programmes that changes the "traditional" purpose of libraries – as the literature on often suggests (e.g. Shoham and Yablonka 2008; Scott 2011) – to the planned informality of contemporary public libraries. This phenomenon is also caused by the reorganisation of spatial functions of the traditional programmes of libraries towards a spatially

weakly programmed experience, where social awareness is generative rather than conservative. Although reading and studying are different activities from congregating, interacting, playing, they are all forms of socialization. The changes characterising contemporary libraries can be associated with two phenomena: first, the decentralisation of print matter from access to information, and second the shift of pedagogical and learning approaches from the didactic model of learning to collaborative interactive forms of learning, supporting learner-led activities and innovative forms of thinking. As society is transforming from one when knowing 'what' is less important than knowing 'how to' – through networks and wireless devices – libraries and other learning environments will be increasingly developing in a manner similar to the SCL model. This model is close to what Rem Koolhaas refers to as "irrigating a site with potential" (Lucan 2012), which means creating opportunities for things to happen in space rather than prescribing how things happen and where they should happen. Environments like the SCL show that instead of making physical space and typologies like libraries obsolete, information technology can have the effect of making them central spaces for learning, conferring interacting, all of which are essential factors for innovation through socialisation.

4.2. Procedures of analysis for the cases of Medellín

This section intends to explain how the present study will use space syntax methods (in combination with other methods) in order to address the research questions set in chapter 1. It is organised in four parts that correspond to the next chapters (5, 6, 7 and 8). The methods utilised in the pilot study proved to be efficient in addressing the problem of public use of public libraries. The experience acquired with this exercise allowed for the preparation for the fieldwork on the main cases of the research, particularly in relation to planning the time and instruments needed. Nevertheless, the methods were adapted for the cases of Medellín, considering a number of reasons, which are detailed below.

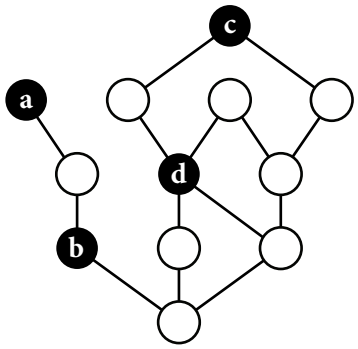


Figure 4.09: Topological types of space [a], [b], [c] and [d]. Adapted from "Space is the machine" (Hillier 1996, 249).

a) The configuration of space

The first group of analyses addresses space as a pattern in itself. Chapter 5 will in fact present the case studies through this first group of analyses. I compare the buildings through describing their architectural characteristics. I look at each library through their vistas, plans, and three-dimensionality, using also space syntax methods to analyse aspects of their spatial configuration (e.g. VGA and intelligibility). In this regard, I should emphasise that all architectural drawings in this Thesis were produced by the author, mainly due to the fact that they were either not provided by the architects of the buildings, or highly incomplete. The plans were 'corrected' or completed from fieldwork visit.

Visual Graph Analysis (VGA) shows the configuration of all visual fields of a standing person in all points of a hypothetical grid of points covering all spaces of the building (VGA visibility) and this same configuration considering constrains to movement (furniture, voids, glass barriers, hand railings, etc.) (VGA permeability). VGA Visibility considers the eye level of visibility and VGA Permeability considers spaces that are accessible to be walked (researchers in space syntax often use the surrealistic metaphor of 'eyes in the knees'). In general, the former shows the picture of the configuration of visible fields, which see through glass divisions, and over low furniture, low walls, railings, voids and reflecting pools. The latter shows the picture of the configuration of accessible space, which is restricted by glass divisions, furniture (low and high), walls, railings, voids, reflecting pools, and etc. Similarly to Convex and Axial analyses, it provides measures of integration for each point in the grid. Intelligibility stands for how much one understands of the whole building

from where one stands. In space syntax, intelligibility is calculated as the correlation between integration (which is a global measure of how close a space is to all others) and connectivity (which is a local measure of how many spaces are directly accessible from a given space). In other words, 'intelligibility' is a measure of how much the "overall configuration of space can be built up from its parts" (Hillier 1996, 94).

The information from space syntax analyses is combined with the one gathered from fieldwork (photos, interviews and overall impressions). The intention of the first analysis (a) is to capture how the buildings shape potential patterns of use (in other words, how they construct 'virtual communities' as described above).

In order to produce these analyses, two main techniques were used: firstly, the plans of the buildings are analysed using DepthmapX, which is a software for space syntax analysis. Secondly, the information from fieldwork is synthesised in order to illustrate the key aspects that the space syntax analysis highlights. For instance, the syntactic analysis indicates where are the integration cores – space syntax often considers as a 'core' the spaces with the 10% highest values of integration – and segregated areas of the buildings. The fieldwork material helps then to describe the salient qualities of these spaces. In this way, this first analytical exercise combines both non-discursive and discursive techniques.

b) Analyses of the relation between space and programme

Space syntax research has consistently shown that cultural genotypes are retrieved from the combination of observed programmatic descriptions and asymmetries in spatial affordances (Hillier and Hanson 1984; Hillier, Peponis, and Hanson 1984; Penn 2001; Hanna 2011). In fact, space syntax research calls 'inequality genotype' precisely when asymmetries in spatial affordances consistently correlate with the same programmatic descriptions in a sample of buildings (Hillier 1996, 196). This research looks at the Library-Parks from an 'inequality genotype' perspective. Since the Library-Parks have very different spatial structures, they cannot be regarded as constructing the same (probable) patterns of use ('virtual community'), and therefore are buildings that might differ completely in what they serve for society. In other words, they may even be considered as different building types (from an 'inequality genotype' perspective).

Two main methods were used to analyse spatial distribution of programmes. The first method refers to identifying the topological relationships between spaces; namely, the topological types [a], [b], [c], and [d] spaces (Hillier 1996, 247-255) (Figure 3.01). In a nutshell, if one considers the building through its convex structure, one may note that there are spaces that have only one connection (type [a]); spaces that lead to a [a] type space, forming sequences (type [b]); spaces that are in a ring of circulation (type [c]); and spaces that are in more than one ring of circulation (type [d]). This analysis may expose whether a particular space performs as 'to movement' [type a] or 'through movement' [type d]; or if this space may be accessible by only one possible sequence of spaces (lying on a sequence of [type b] spaces), or by many different ways [type d] (Figure 3.01). These are represented in a 'justified graph', which is a "technique for representing spatial configuration (…) [where] a particular space is selected as the 'root', and the spaces in the graph are then aligned above it in levels according to how many spaces one must pass through to arrive at each space from the root" (Hillier, Hanson, and Graham 1987, 364). The programmed activities of the Library-Parks do not have an intrinsic 'conceptual' (or 'transpatial') order. Therefore, the analyses of their topological relationships in space will help informing what are the programmatic sequences and structures constructed by the buildings.

The second method concerns looking at the distribution of programme in space in relation to convex 'integration analysis'. As explained earlier, values of spatial integration expose the relative asymmetry of specific spaces in relation to the whole complex. The most integrated spaces of a complex are often the ones with higher probability of encounter, since they are the closest to all others, becoming a potential 'core' for movement inside buildings. In this sense, the Library-Parks may be organised into types of buildings with similarities in the location and programmatic role of their integration cores and their segregated areas. In this regard, Hanson's 'Decoding Homes and Houses' (1998) is exemplar in offering many studies that utilise a similar approach to analysing architectural spaces of houses.

c) The mapping of use

Space syntax research offers interesting methods in regards to producing empirical observations in ways that may be contrasted with spatial information (e.g. Hillier et al. 1996; Penn, Desyllas, and Vaughan 1997; Doxa 2001; Koch 2004; Psarra et al. 2007; Psarra 2009). The three most usual forms of observation are called 'snapshots', 'gate counts' and 'path traces', which are generally performed a certain number of times[8] in order to allow the construction of an aggregate picture of the use of the buildings. 'Snapshot observation' concerns a nonintrusive[9] method of mapping users' activities at the moment of the observation. It is done with a plan of the building, where the researcher annotates what kinds of use happen in each room. The precision of such an analysis depends on the research questions, which might require very precise location of activities, or simply an average of usage pattern per room. 'Gate count observation' concerns counting how many people cross a previously defined abstract 'gate' (a threshold, for example) for 5 minutes, taking notes of the directions of this crossing. In this research, the gates are the boundaries between connected 'convex spaces'. 'Path traces observation' concerns mapping visitors' movement paths in the building through following them from a starting point until they stop, leave the building or for a certain duration.

However, the current practice of these forms of observation in space syntax research often considers a very limited differentiation of 'kinds of use', describing only whether people sit, stand or move in space (and whether they interact with others). In this research, these observation methods were improved in order to address the problem of how informal and formal activities take place in libraries. Here, this mapping of use starts by defining different 'kinds of use' of the library[10], especially in relation to three different purposes in contemporary libraries – physical access to information, virtual access to information and public gathering. Each of these purposes suggests specific activities and interfaces – particularly how visitors

8 The number of times depends on the research questions and in particular how accurate the resulting picture should be (in the sense of improving the statistical validity of the data).

9 The identities of the users cannot be retrieved from the mapping. For this reason, and in order for the observed practices to suffer as little as possible from being influenced by the presence of the observer in space, the observations in this research were made without the knowledge of the people under observation.

10 This is not the same as what this research is calling 'spatial cultures'. On one hand, 'kinds of use' refers to an abstractly defined way of identifying different activities (e.g. 'reading' as a kind of use different from 'studying'). On the other hand, 'spatial cultures' refers to the types of aggregate pattern of these uses in space. While the formers are being defined a priori to the study, the latters are in fact a result of this research.

deal with physical/virtual content from the library and how they interrelate with each other. In summary, the following activities were identified: reading; studying; working; playing; searching; relaxing; walking; meeting; dating; doing art; using phone or tablet; taking photo; eating; and watching a film or exhibition. The rationale for the identification of these activities and an account of how each analysis was performed will be detailed further in each analytical section of the thesis. This facilitates the understanding of each analysis, as it organises methodological explanation together with the actual analytical exercise.

Since the 'publicness' of the Library-Parks is the focus of this research, the observations took the point of view of the visitors, rather than the administrative staff. In other words, it escapes the scope of this research to detail the organizational cultures of each Library-Park institutional administration. Such a study would have to consider the staff members that are not visible from visitors' point of view, as well as take into account organizational tasks, transpatial groups and hierarchies among staff members, etc.. Rather, in this work, the interest lies on the relationships between staff and visitors, both explicit ones (e.g. programmed activities) and implicit ones (e.g. in corridors and other unprogrammed areas). In order to analyse the spatial manifestation of the latter, the usual positions of library staff members and their fields of view are mapped and overlaid, in order to address how they (staff members) may (potentially) practice surveillance over visitors' activities.

At this point it is interesting to return to the work of Zook and Bafna (2012), as they use a mapping process of 'stereotypical users' to identify commonalities and differences in their paths in the library. A difference from Zook and Bafna's study and the one carried out by this research is that here the 'stereotypical paths' are not drawn by the researcher a priori, but they are a by-product of the analysis of observed real movement. In addition, this research also maps three other[11] types of activity in space that were not mapped by Zook and Bafna: occupation, interaction and surveillance.

Normally space syntax research collects observation data and translates them into occupancy rates. This was indeed the method I applied in the pilot study. The relationship of space and occupancy rates is subsequently explored through statistical correlations looking at probability distributions. While statistical analysis can

11 (other than movement)

address the relationship between occupancy and spatial values, the actual networks of spatial and social relationships among different kinds of users are lost in the analytical process. Thus, instead of only searching for regularities between space and rates of activities, this work aims at mapping how the buildings form intervisibility networks as processes through space and time. Zook and Bafna (2012) elaborate that intervisibility between different activities' paths generate distinct 'senses of publicness' in the Seattle Public Library, potentially influencing how visitors see their role in space and in social practices. Intervisibility between different subject groups is also a crucial aspect in Peatross' study (2001) on institutions that deal with restriction of movement and occupation (namely Alzheimer units and juvenile detention centres). She exposes how different spatial arrangements of 'visibilities' influence relaxation and kinds of control over patients. As reviewed in the previous Chapter, Lu and Peponis (2013) study shows that patterns of intervisibility affect the perception of curatorial messages in exhibition layouts. What I may suggest is that, similarly, intervisibility between different user groups in library spaces may construct perceptions of collectivity and social participation in the Library-Parks of Medellín. I do not assume that seeing people interacting necessarily enables the expansion of one's own social network. If that were so, restaurants and cafes would be great interaction network generators and social transformers. The focus of the study is to construct an aggregate collective picture of how interactions form spatial cultures, rather than the possibility of individuals' expanded social networks. Interaction is not simply based on a face-to-face communication with another person or group, but also on the awareness of possibilities of interaction inherent in the networked distribution of people and groups in space. This defines interaction not simply as an actual pattern of communication, but as the complex relationship of the actual (the interaction one has at a given moment in time) with the virtual or the possible (the possibilities for interaction that are visibly present in a given space). Links of intervisibility are used in order to capture how co-inhabitation forms collective patterns of programmed/unprogrammed co-awareness. This is a relevant issue in public libraries, as they are open to all comers (unprogrammed movement, occupation and interaction) and at the same time are hosts of ideals of democratic communication and collective values

(Bennett 1995; Buschman 2005; Gaiman 2013). Thereafter, I argue that the ways in which these two kinds of interactions (programmed/unprogrammed) are distributed in space influence how visitors see themselves as a collective.

In summary, the empirical data to be collected concern snapshot studies of different types of activity, staff member common (visible) locations and traces of visitor movement paths in the buildings. The intention with these observations is to construct a picture of the use of the Library-Parks as detailed as possible. It is noteworthy that 'mapping' is a method used by other studies that investigate about visitors' activities in public libraries (e.g. Leckie and Hopkins 2002; Given and Leckie 2003). However, different from what is intended in the present work, these studies tend to analyse their mapping surveys only through a demographic profile of the use of space. In other words, space is subtracted from the analysis so that the use of the library can be analysed 'transpatially'. As a result, visitors' activities are synthesised as 'rates of activity' (and 'rates of demographic distribution'), but their spatiality is lost in the analytical process. Here, this research does not aim to capture formally defined social groups (such an ethnographic study escapes the scope set by the research questions). Rather, it looks at *observed activities* grouped in space based on *observed co-presence* (in opposition to linking them based on formally defined social groups or demographic information). In this way, the libraries are described in terms of the *types of cultures* that they generate *through space*. The relevance of such a description lies in the fact that space is the main element that constrains co-inhabitation: i.e. this analysis exposes the role of space in giving structure to these forms of use as a collective whole.

d) Describing public libraries as types of spatial culture

The comparison between both (a), (b) and (c) analyses described above – that is, of how space for a pattern in itself, how programme is distributed in space and how uses form patterns in the libraries – underpins the formulation of general principles of how the organisation of programme in space affects the construction of spatial cultures, and, thereafter, how this organisation implies in the retrieval of

specific social orders. In other words, these three analyses seen together enable the formulation of how architecture can 'generatively' or 'conservatively' construct ideas of society in the public libraries of Medellín. In fact, the intention is to formulate better definitions of these polarising categories, and of the concept of 'spatial culture' considering the results from the study on the cases of Medellín.

In other words, the main exercise proposed is to analytically identify *types* of relationship between *types* of architectural affordances and *types* of spatial practices. The research design was adopted in order to first differentiate the buildings in regards to their affordances, secondly in regards to their spatial distribution of programmes and thirdly in regards to the ways in which they are used. In this sense, the main objective is to define the spatial cultures of public libraries based on this typological exercise.

Chapter 5
Cases and their spatial structures

This chapter presents the main cases of the research through a description of their architecture, spatial structure and other information gathered from fieldwork. The first section explains the rationale for case selection and the tools used for the empirical work. Then each of the five cases is presented using space syntax methods (VGA, and convex analyses). At the end, the chapter discusses potential limitations for a comparative study on the libraries.

5.1. Rationale for case selection and fieldwork framework

This section presents some of the practical problems and decisions faced during the research. It first explains the rationale for selection of cases, followed by a brief account about availability of data and the tools used in the research.

Rationale for case selection

At the time of fieldwork preparation, there were 9 Library-Parks built. Due to time and resources limitations, the research could not analyse and observe all the libraries, but should concentrate the efforts on five buildings[1]. The first criterion for choosing which buildings would be analysed was related to time of construction: the research focused on studying the first Library-Parks built. This was due to three main factors: firstly, to address buildings that were already part of the everyday life of the inhabitants of their surroundings (some would have been constructed since almost 8 years prior to the visit). Secondly, the designers of first Library-Parks had no prior reference to what a 'Library-Park' should be, or what worked or not. In other words,

1 The number of buildings to be analysed was defined considering the experience acquired with the pilot study, particularly in regards to the time that is needed for processing empirical data with the analytical softwares.

Figure 5.01: Map of location of Medellín in Colombia.

these first buildings worked as experiments and models for the others that came afterwards. Thirdly, some of the architectural features of these first buildings had to be adapted due to administrative issues regarding how visitors could or could not use the library. This was a significant fact that could help expose the disjunction between visitors' behaviours, administrative need for control and architectural arrangement. As a result of this first criterion, the Library-Parks that would be studied would have been: San Javier, España, La Quintana, La Ladera and Belén (Figure 3.03).

The second criterion referred to analysing buildings with different spatial structures, so that the research could address as many (potentially) different Library-Parks as possible. In fact, most of the first libraries were significantly different from one another (considering a typological observation based on their morphology) (Figures 5.03 and 5.04). The only exception was found in regards to España Library-Park and La Ladera Library-Park[2] (Figure 5.04). Both buildings divide their programmes into three 'blocks' (or 'towers'), creating a tree-like structure of access (Figure 5.03). Furthermore, it was advised that La Ladera Library-Park was situated in an area that was not as safe as the neighbourhoods where the other libraries were located. Considering these aspects, Fernando Botero Library-Park was then chosen to be analysed, since it is not only representative of another formal structure (in a linear building, with entrance in the middle of the long axis, Figure 5.04) but also of a second phase of construction of Library-Parks.

Dataset

The data that concerns the scope set by this research refers mainly to four aspects: a) plans, sections and vistas of the buildings; b) spatial analysis; c) organisational and programmatic structures of the buildings; d) mapping of use (from empirical observations). Although all this data can be gathered directly from fieldwork (apart from spatial analysis), the contact with architects and with library managers was considered of great value, as it exposed their personal opinion in relation to the projects of urban upgrading. Besides architects and library managers, the organisers of the programme 'Medellín Digital', 'Red de Bibliotecas' and 'Parques-Biblioteca' in

2 Interestingly, they were designed by the same architect, Giancarlo Mazzanti.

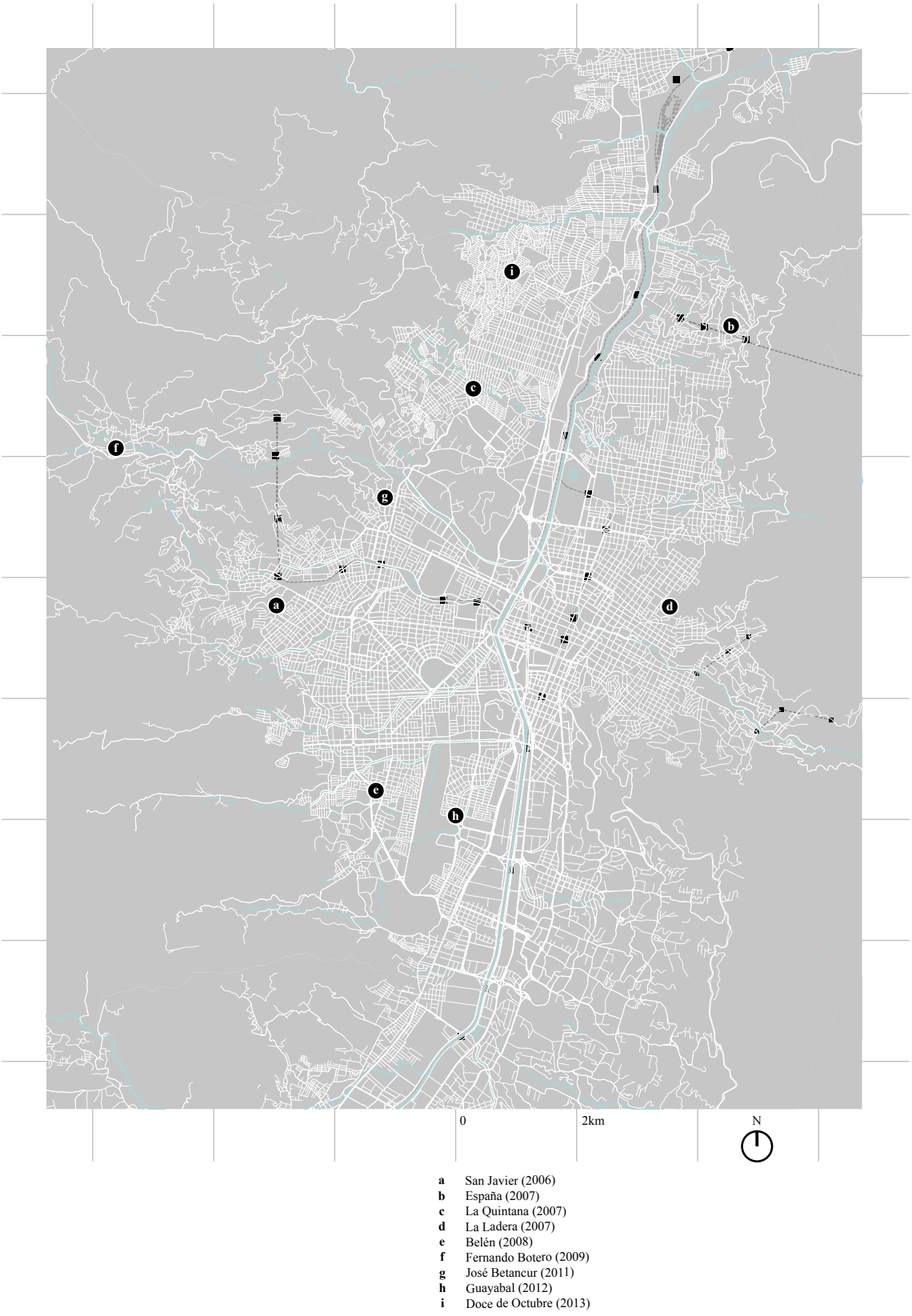


Figure 5.02: Map of the location of the Library-Parks in Medellín (black circles) and the lines of Metro and Metrocables (dotted lines) and their stations (black squares).

Figure 5.03: External views of six Library-Parks: (a) San Javier, (b) España, (c) La Ladera, (d) La Quintana, (e) Belén and (f) Fernando Botero.

Medellín were also contacted for these reasons. From all the contacts made during fieldwork preparation, only a few agreed to meet for interview/conversation, namely: a) Herman Montoya, leader of the Project of Library-Parks at the Alcadia de Medellín (Medellín's Municipality); and b) each Library-Park manager, who provided me with permission to visit and study the buildings. The intention with the conversations with Herman Montoya and each library manager was to present my research design (so that they could understand what I was planning to do) and interrogate about possible problems or issues that the Project could have faced and/or be facing (which were not obviously part of the official information on the use of the buildings). These

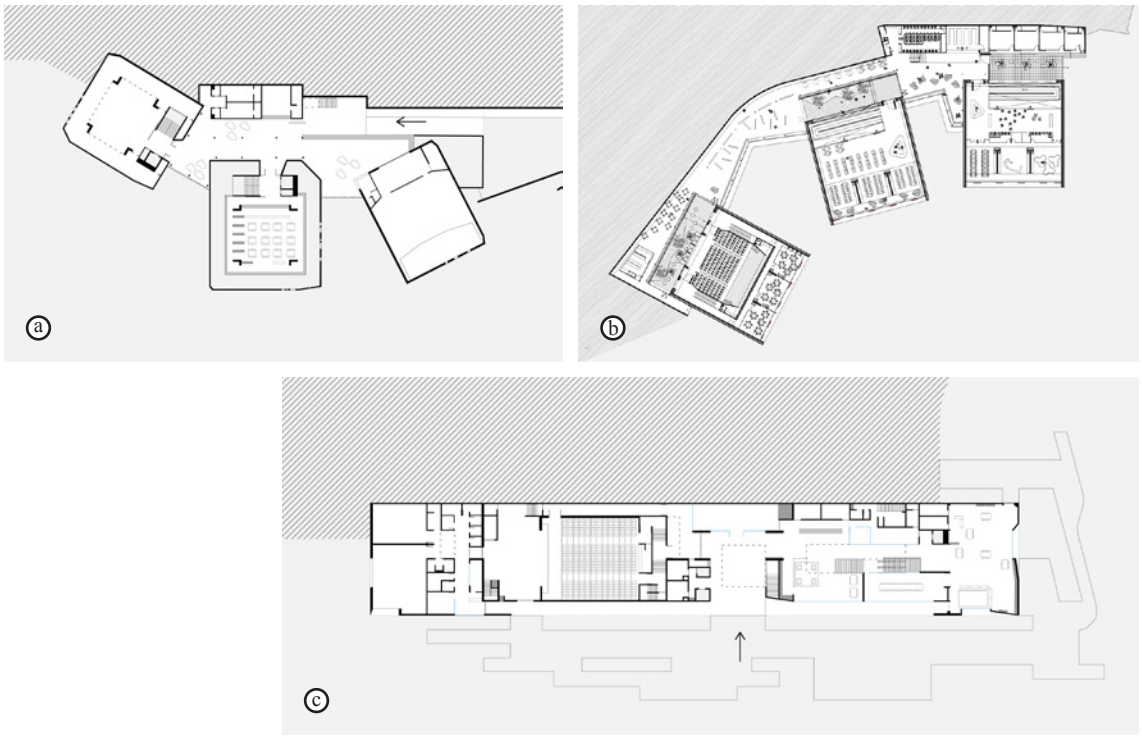


Figure 5.04: (a) España, (b) La Ladera and (c) Fernando Botero Library-Parks.

conversations enriched the empirical observations, as for example, they explained how the population reacted to the opening of each Library-Park. In addition, they informed me about safety measures that I should take in the Library-Parks and their surroundings[3]. Furthermore, a conversation with the architects Edgar Mazo and Sebastián Mejia – founders of the office 'LAP: Laboratorio Arquitectura y Paisaje', who designed important buildings and infrastructures constructed during the period of the upgrading of Medellín[4] – suggested buildings and places to be visited that could expose how Medellín is being renovated. All this data may be considered complementary to the research itself, and contributed for minimising the limitations of the fact that I am not resident in Medellín[5].

This research had access to important data provided by Herman Montoya: namely, the reports on the use of all the Libraries of Medellín for each year, titled "Consolidado de las Bibliotecas pertenecientes al Sistema de Bibliotecas Publicas

3 One of the information given was that it was unsafe and unwise for me to visit the Library-Parks at night.

4 In particular, the Medellín Aquatic Complex and the urban design renovation for the margins of the Medellín River.

5 Although many measures are taken to minimize a biased analysis, one of the main limitations of this research concerns the fact that it relies on personal observations of the use of the buildings.

de Medellín"[6] (Sistema de Bibliotecas Públicas de Medellín – Secretaría de Cultura Ciudadana – Alcadía de Medellín 2010; 2011; 2012; 2013; 2014). These Reports contain information regarding statistics of access to Medellín's libraries' contents and computers, as well as access to the educational activities organised by each Library-Park, since 2007[7]. They differentiate people by demographic information (e.g. gender and age group), providing an interesting tool for comparison of performance between each Library-Park. Although the data in these Reports is very precise – as it is not based on estimation, but informs the true total of all visitors' (measurable) accesses –, it lacks however any kind of spatial information. This fact emphasises the importance of the data collected from fieldwork observation in this research: since it *maps* different forms of use, it provides an instrument to the analysis of their spatial distribution. Furthermore, the data from fieldwork reveals phenomena that would not be made visible otherwise, which is of the numerous kinds of use that are not related to educational content organised by the library, and which were not considered in the Reports. In other words, it exposes the variety of ways in which the Library-Parks function as an extension of public space, regardless of any education content.

Fieldwork and analytical instruments

In the pilot study, the analysis of each library took four weeks (from data gathering, interviews, on site observations, and data processing). It was noted, however, that the two libraries could have been observed at the same time[8]. It was also noted that the observations on site took less time than the processing of the information gathered. Therefore, considering the schedule and the resources that this research could utilise, the 6 weeks long fieldwork took place in March-April 2014, so that at least 5 buildings could be observed and meetings and other visits could be also scheduled. Empirical observation took 3 days per library: 2 weekdays, 1 weekend day, spread across a whole month and interchanged between other libraries

6 In English: "Consolidated data from the Libraries that belong to the System of Public Libraries of Medellín"

7 The first Report was published only in 2010, forming a compilation of four years: 2007, 2008, 2009 and 2010.

8 In fact, it was noted that researching both libraries at the same time would have minimized effects of weather and specific calendar dates (e.g. proximity to school or bank holidays) on the differences of patterns of use.

– this was done in order to avoid the influence of specific dates (such as holidays), or weather conditions. In each day, 4 'snapshots', 2 'gate count' rounds and 12 traces were recorded. Therefore, empirical observations resulted in twelve 'snapshots', six 'gate counts' rounds' and forty 'traces' in total for each library.

The tools used in fieldwork concerned: plans of the library[9] (various copies for each kind of observation) and coloured pens for annotating users' activities. The use of a clock to control the time of each observation was fundamental. The spaces and uses were also photographed (with permission from each Library-Park manager). The observations took place from the time that the libraries were opened until 5pm[10]. After fieldwork, these maps were firstly transferred to GIS files using QGIS[11]. This allowed for the processing of many observations maps at once, which in its turn allowed for some quantitative analysis of the aggregate picture of the uses (this will be explained in more detail in chapter 7). The spatial structure of the plans of the buildings were analysed using DepthmapX[12].

5.2. The five Library-Parks and their spatial structures

This section presents the five libraries studied through describing their architectural characteristics. I will look at each library through their vistas, plans, and three-dimensionality, using also space syntax methods to analyse aspects of their spatial configuration (e.g. VGA and intelligibility). I shall also combine this information with the one gathered from fieldwork (photos, interviews and overall impressions).

All Library-Parks' designs were winning schemes of open international architectural competitions (Montoya 2014). The organisers of the Project of Library-Parks (Montoya 2014; Empresa de Desarollo Urbano 2014) explain that the competitions were open with the intention to endorse the participatory character of the construction of these facilities. The brief presented for the competitions requested

9 The plans, 3D drawings and photos of all libraries presented in this Thesis were produced by the author.

10 One of the information given was that it was unsafe and unwise for me to visit the Library-Parks at night, particularly as I was not a resident of Medellín.

11 QGIS version 2.6. 'QGIS' is an open source software for Geographic Information System (GIS) analysis.

12 DepthmapX version 0.30 (Varoudis 2013). 'DepthmapX' is an open source software for spatial analysis using methods derived from space syntax research. It is the current state of the art of a research started by Alasdair Turner in the 1990ies (see Turner 2001).

a "building for multi-services, library, classes for adult qualification, exhibition room, administration spaces, and auditorium" (Empresa de Desarollo Urbano 2014). The brief also emphasised the social importance of these facilities. Beyond the 'mere' function of a library (to organise and provide access to a collection of books), these buildings have the role to strengthen community values and provide spaces for emergence of socialisation based on informal interactions (Montoya 2014). This aspect was fundamental for the creation of the Library-Parks, in the view of the organisers of the Project.

Peña Gallego (2011) explains that the Library-Parks are obliged by law[13] to provide a number basic of services, for example: direct access and external lending of books, foster education of users, improve literacy, educate for 'digital literacy', access to the internet, etc.. In addition to these basic services, the libraries also provide complementary ones, for example: they host plays, exhibitions, fairs and workshops, provide spaces for children to play and have a cafe. As reviewed previously, the Project is part of a greater Programme of digitally connected libraries ('Red de Bibliotecas'[14] and 'Medellín Digital'[15]), which offers open access to a wide range of resources online, from books, to videos and other forms of digital content. In this sense, the Library-Parks can be considered as integrated within a digital programme.

Aside this 'digital integration', the libraries are also spatially integrated in their urban contexts. The Library-Parks are linked administratively *and spatially* by the "Proyectos Urbanos Integrales" ('Integral Urban Projects'). In some cases (particularly España Library-Park, Figure 5.06a), the library buildings are surrounded by other interventions of the Project of Urban Upgrading (e.g. schools, cable-car stations, new public spaces, etc). Moreover, the projects in Medellín are referred to follow a strategy of urban renewal called 'urban acupuncture', which promotes the idea that an urban area can be entirely affected by small, but precise, operations in very specific locations (Peña Gallego 2011). In other words, their 'urban impact' would expand to areas that are distant to their specific locations.

However, although an analysis of the 'urban impact' of the Library-Parks' position in the city would provide interesting information with regards to placing

13 Law 1379/2010, article 20.

14 In English, 'Network of Libraries'.

15 In English, literally '*Digital Medellín*'.

public architecture in informal environments and to how these buildings are integrated in the existing urban culture, this exercise was not included in the thesis for two main reasons. Firstly, there were serious safety recommendations as to where I could visit during the fieldwork (I was advised to avoid walking around most of the Library-Parks), and considering the fact that these informal settlements are not always mapped with precision, the analysis would have major issues as to how to collect data (urban morphology and urban uses). Secondly, and more importantly, such an analytical exercise escapes the main focus of the present research, which is to investigate how buildings (and their interior morphology) may *generate* 'communities' in their own right – which is the *raison d'être* of the Library-Parks Project. In this sense, I focused on how the library spaces incorporate public use as extension of public urban space, and how the position of entrances in relation to the urban context potentially affected the patterns of use. For example, the libraries' access, as I describe below for each building, is often uncontrolled, which is an aspect that encourages the use of the buildings as extensions of public urban space. The libraries are opened to the public from 9am to 8pm (Monday to Saturday) and from 11am to 5pm (Sundays and holidays). In this matter, chapter 7 will analyse in detail how movement from urban space to urban space (people crossing the libraries spaces on their way to other places in the city) interacts with the activities of the libraries.

From the empirical observations, I confirmed that the buildings studied have the same set of programmes, namely: a) adults' library; b) children's library[16]; c) 'ludoteca' (playground), which is a room furnished for children to play[17]; d) adults' computers; children's computers[18]; e) workshops, which are spaces with furniture and infrastructure for artistic works (mirrors on the walls, sinks, movable furniture, etc.)[19]; f) exhibition room; g) 'sala mi barrio' (local studies); h) studying area (with tables); i) auditorium; j) information and issue desk; k) cafe. The analysis and description of the ways in which these programmes are distributed in space is precisely the topic of the next chapter.

16 There is no differentiation between reference and lending libraries, but material is separated into age groups (children, youth, adult), but often the adults' and youth libraries are placed together.

17 Due to ethical limitations in regards to observing children, the empirical analyses of uses in these spaces was limited to what could be seen from a distance.

18 To access the computers (both adults' and children's), one must have a card that allowed 1 hour of purposeless use per day, and as many hours needed if the use was for educational purposes (e.g. children doing schoolwork).

19 In order to be used, these rooms had to be booked in advance with the administration of each Library-Park.

Jaramillo (2012) posits that the collection of these programmes main aim is to include the underprivileged communities of Medellín in a "21st century democratic process". For her, the case of the Library-Parks exposes the Municipal intention to use knowledge and information as the fundamental means to achieve this result (this 'inclusion'). In this sense, these communities would be included in the economic and civic rationales of the information society. Jaramillo concludes her article on the Library-Parks formulating that:

> *"(...) the aspects that make the public library work towards the formation of citizenship education are based on three pillars: first, that the activities in the libraries underpin the conditions for the visitors to appropriate information and knowledge; second, that the visitors are instructed about how to use this information and knowledge in their daily lives; third, that these experiences are then used to improve their community and collective life (...) through co-inhabitation, (...) participation, (...) and autonomy (...)."* (Jaramillo 2012, 80)

In other words, she sees that the libraries acquire a significant political role through their educational agendas that stimulate appropriation and participation. Peña Gallego (2011) have similar conclusions to Jaramillo, suggesting that the Library-Parks have a profound impact in educational, cultural and social development of the surrounding communities. In addition, he argues that these buildings have a political role in facilitating "the citizen encounter and the generation of new ways to inhabit the city". What is important to highlight in the case of the Library-Parks is that, aside their set of programmes, their architecture (and spatial structure) is also fundamental for this political role. Indeed, one of the mayors of Medellín highlighted the importance of architectural quality in these projects, stating that their aim was "to activate the power aesthetics as a motor for social change" (Salazar apud Brand and Dávila 2013). Another mayor[20] (Sergio Fajardo Valderrama) was also known for a similar statement: "the most beautiful for the most humble". These statements were used to argue in favour of monumental architectures for the Library-Parks. Their buildings all stand out in their surroundings, producing an impact by architectural contrast[21] (e.g. Figure 5.06c). In the following sections I will address these as well as

20 The sequence of Mayors of Medellín ("Alcades") since the opening of the Library-Parks was the following: Sergio Fajardo Valderrama (2004-2007), Alonso Salazar (2008-2011), Aníbal Gaviria Correa (2012-2015) and Federico Gutiérrez (2016-2019).

21 In Chapter 1 we also discussed the fact that these buildings produce "historical contrasts" by being located in places that are related with histories of strong violence of the time of the Cartels (Montoya 2014).

other architectural characteristics of the projects. In fact, little has been discussed and described about the architecture of the Library-Parks, aside their monumentality and their set of educational programmes.

San Javier Library-Park

San Javier Library-Park[22] (Figure 3.05), hereafter PB San Javier, is situated on a hillside in between the districts of Comunas 12 and 13. The official 'full name' – "Parque Biblioteca Presbítero José Luis Arroyave Restrepo" – pays homage to a community leader that was killed in 2002. This homage, together with the fact that building is located in a place associated with violence and poverty since the 1980s, exposes the intention to use this library as a symbol of social change.

The library was designed by Javier Vera Arquitectos and it was the first Library-Park built in Medellín (2006). The hill where the library is located is easily accessed from the Metro Station of San Javier. A bridge makes a direct connection from the station to the series of gardens that provide access to the library. The building plan offers an interesting solution to fitting floors on a slope: it is organised in cascading platforms, with each 'step' consisting of corridor and rooms. A few courtyards open the building to daylight and break the sequence of rooms in the corridors. The architect stated that his intention with these courtyards was to improve the passive control of temperature and light in the building. The form of the building is a result of the 'chess matrix' of rooms, courtyards and corridors (Figure 5.05c). From the outside, the rhythm of this matrix can be perceived in the façade, which is formed by a sequence of projected rooms (Figure 5.05c).

An aspect to be noted is that the library was constructed with many entrances (one in each 'strip-step'), but the administration keeps only the main entrance opened (Figure 5.05b). This main entrance is accessed from the top of the building. Therefore entering the building and accessing its spaces happens through going down the 'cascading platforms' (Figure 5.05d, photograph [a]). A main circulation system may be accessed from the entrance of the library and concentrate most of the stairs and ramps of the building (Figure 5.05d, photographs [a] and [b]). It is also the space furnished with sofas and plants that produce an informal atmosphere.

22 Which is also named "Parque Biblioteca Presbítero José Luis Arroyave Restrepo", in homage to a community leader that was killed in 2002. This research will also refer to this Library-Park as 'PB San Javier'.

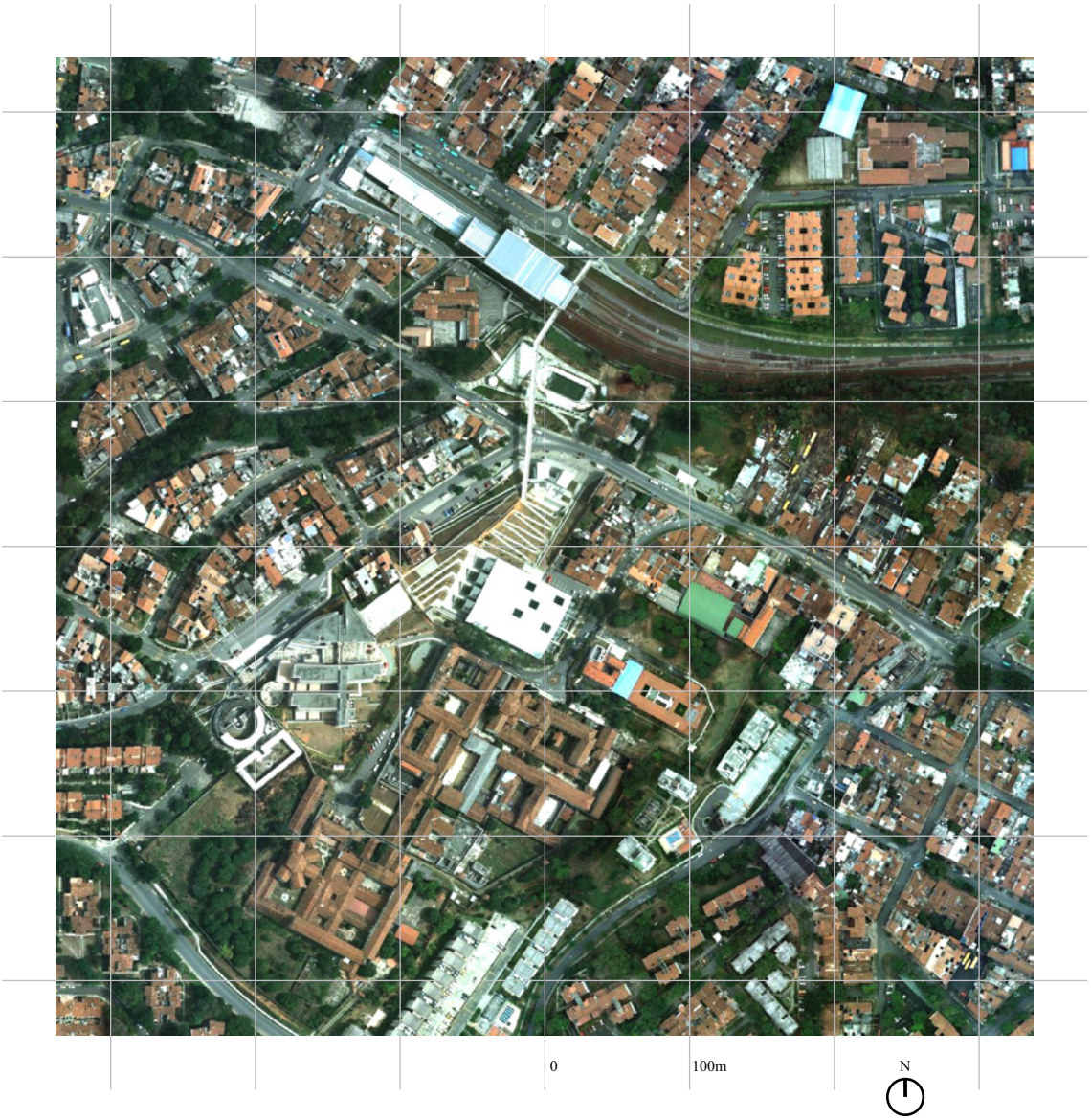


Figure 5.05a: PB San Javier is situated on a hillside in between the districts of Comunas 12 and 13, near the San Javier Metro Station.

In order to understand the distribution and access to the programmes it might be easier if one disregards the cascading platforms and understand the building as two floors. Visitors may access it through both floors, but both entrances[23] take the visitors to the same controlling threshold in the first floor, which we may consider as the 'actual entrance' to the library. Indeed, in all Library-Parks there is a threshold where a guard stands to control the entrance of the library. Aside this staff member, these thresholds have also electronic parallel totems that recognise whether an item is wrongly being taken away from the library (similar to the ones found in shops). We

23 If one accesses it through the ground floor, one first crosses the space of the café and then one has either the option to enter the exhibition room or to go up to the first floor, where the 'actual entrance' is located.

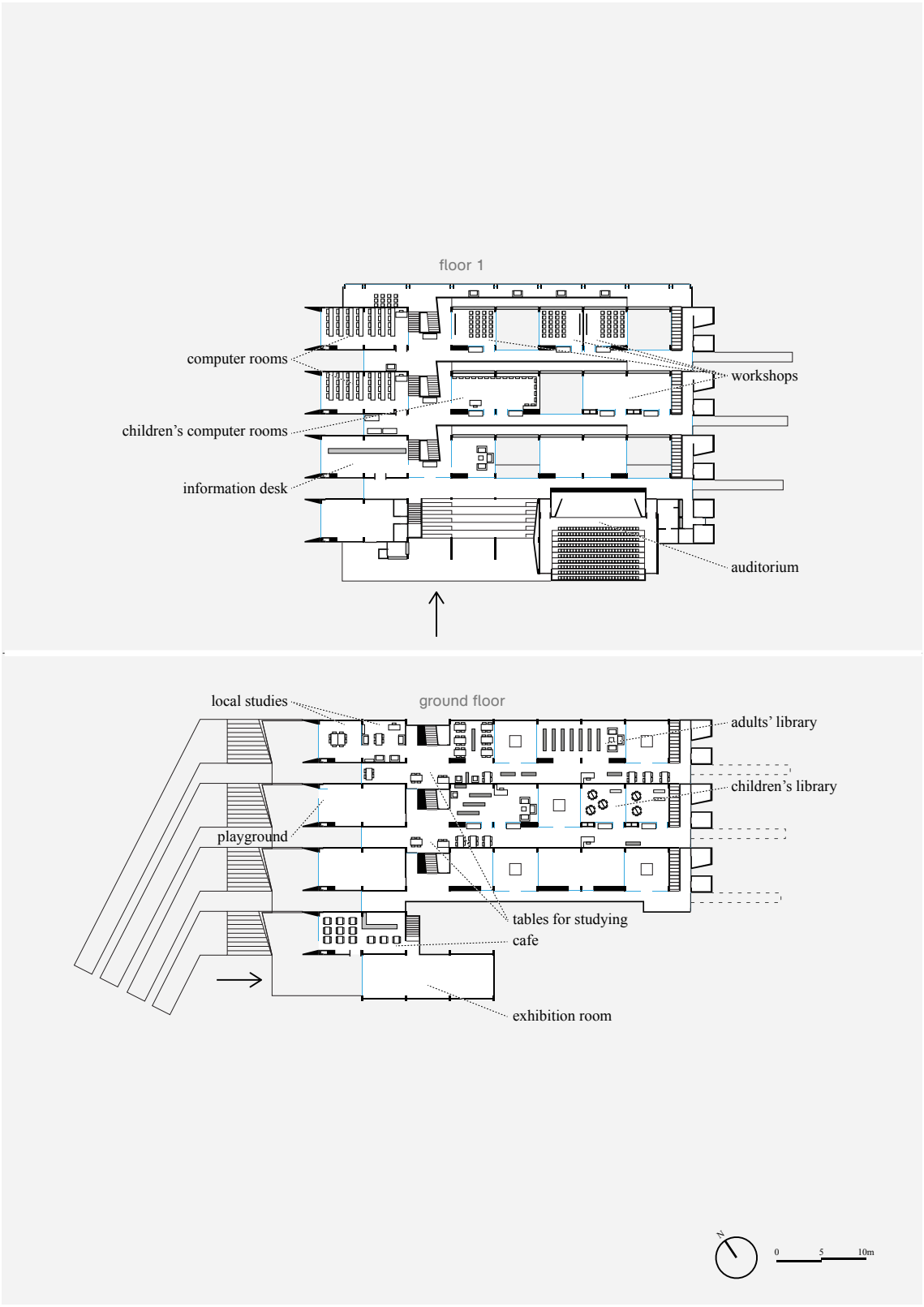


Figure 5.05b: Plans of PB San Javier, with indication of programmes.

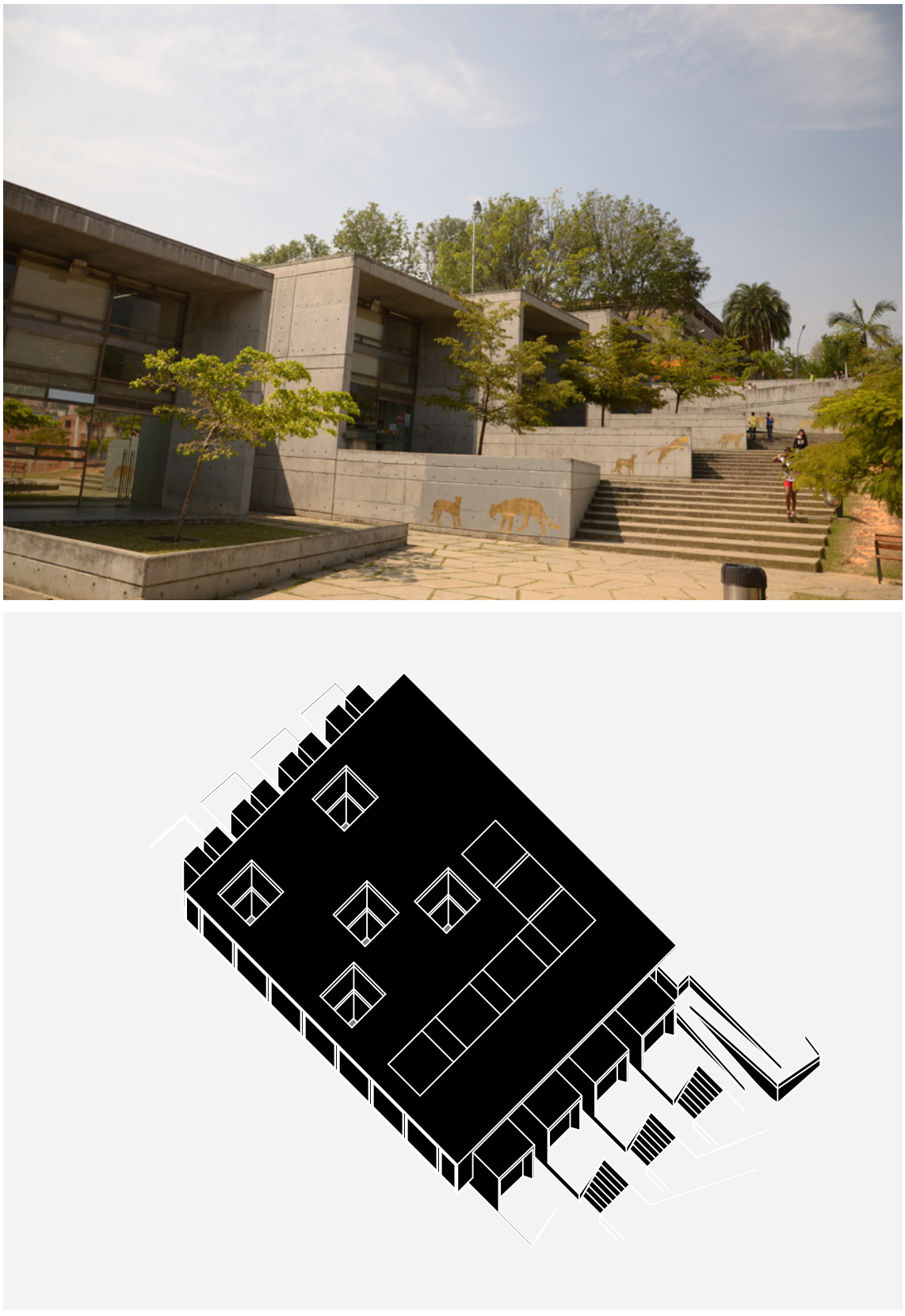
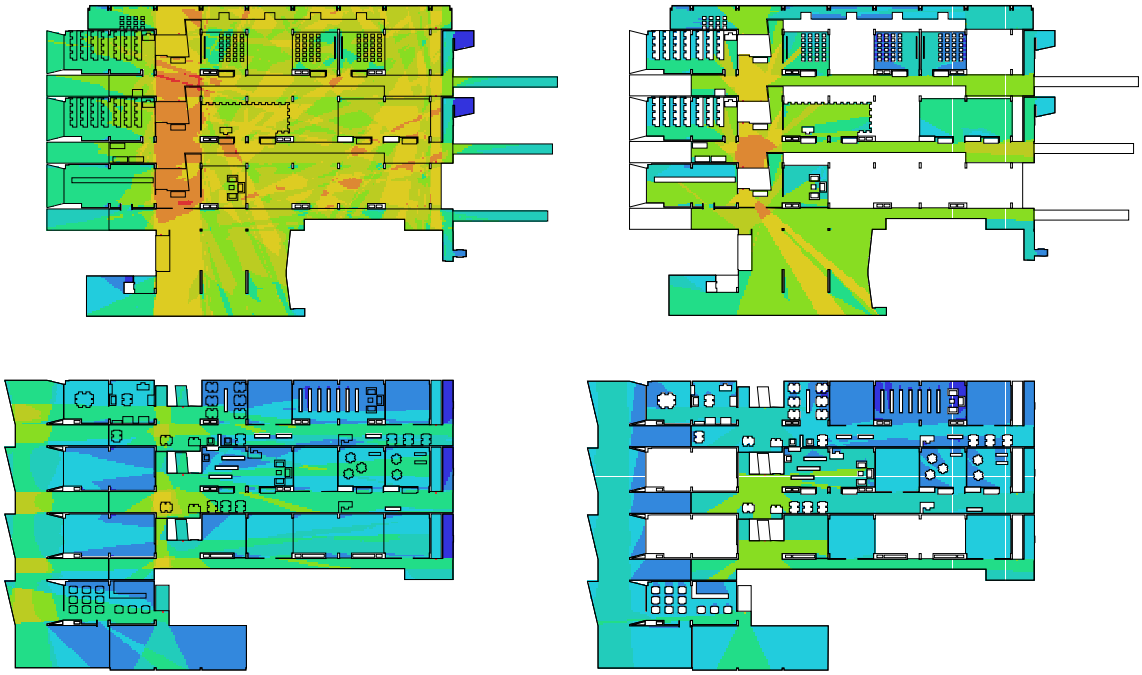


Figure 5.05c: External view and 3D axonometric study of PB San Javier. The form of the building is a result of the chess matrix of rooms, courtyards and corridors. From the outside, this rhythm of this matrix can be perceived, as the façade is formed by the sequence of projected rooms.

Figure 5.05d: Photos of PB San Javier. (a) View from the main circulation axis. (b) View of the connection between the main circulation axis to corridors. (c) One of the 'relaxed study spaces' near the courtyards. (d) Study spaces in the lower levels.

shall call this threshold as the 'actual entrance' to the libraries and their location in the complex might indicate interesting similarities differences among the cases. In the case of PB San Javier, this 'actual entrance' separates the auditorium, exhibition room and café from the 'interior' of the library. The main circulation system is accessed directly from this threshold. The lending libraries, local studies, café and exhibition room are located in the ground floor. However, due to the intricate combination of stairs of the cascading platforms, in order to move in between these programmes, visitors are required to go to the first floor and then go down another staircase, in another platform (Figure 5.05b). The workshops, computer rooms, issue desk and auditorium are located in the first floor. The next Chapter will provide a more detailed analysis and discussion about the distribution of programmes.

An aspect to be noted is regarding the visibility of spaces and programmes. Due to the many glass divisions in between rooms, the spaces of the library become available to be seen by everyone inside the building (and in some rooms even from the outside). Even from distant points of the library it is possible to see what other



(a) (b)

Figure 5.05e: Visual Graph Analyses (VGA) of PB San Javier, showing most integrated areas in hot colours and most segregated in cold colours. (a) Shows VGA for visibility. (b) Shows VGA for permeability (considering barriers for movement, for example glass divisions, voids, low walls and railings).

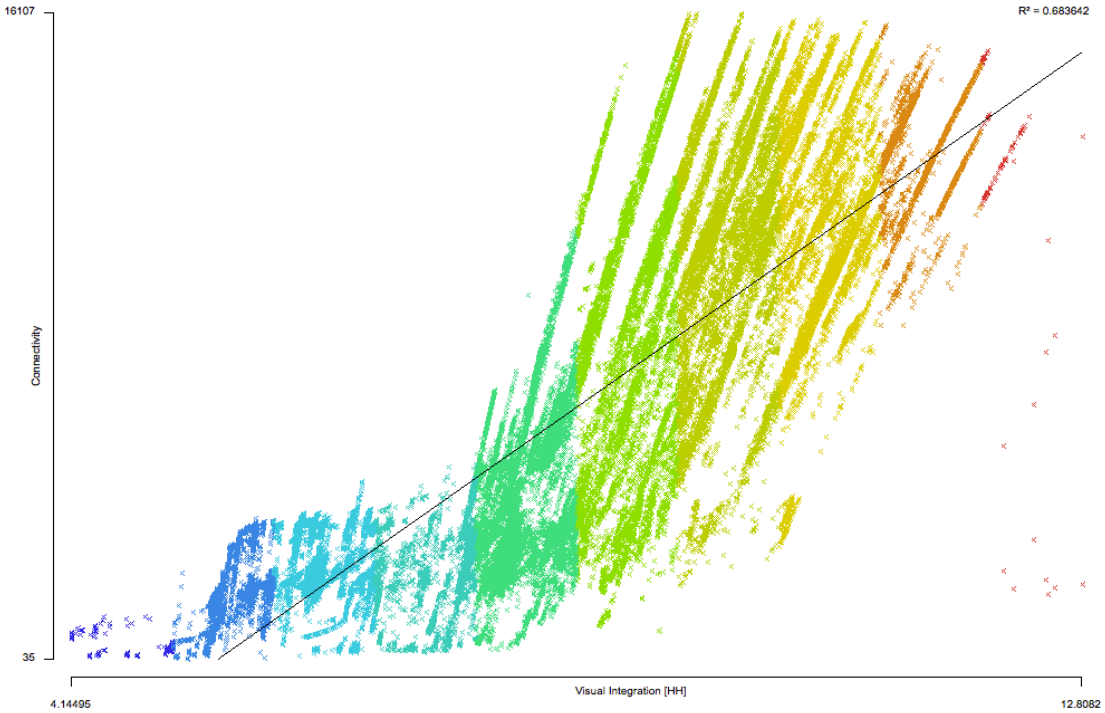


Figure 5.05f: Intelligibility of PB San Javier. In space syntax, intelligibility is calculated as the correlation between integration (which is a global measure of how close a space is to all others) and connectivity (which is a local measure of how many spaces are directly accessible from a given space).

people are doing in different programmes. The VGA Visibility (Figure 5.05e) shows the distribution of visibility in the library. The analysis picks up the main circulation system in the first floor as the most integrated space. The most segregated spaces are those in the ground floor, which are accessible only after crossing all spaces of the main circulation system in the first floor and after descending the stairs. These spaces are programmed as adult library and study room. The visual segregation of those spaces might produce an atmosphere of seclusion and intimacy. Chapter 7 will address how use is in fact impacted by this characteristic, but based on the programmes allocated for these spaces, I may suggest that this secluded atmosphere might encourage quiet study. A similar distribution of integration values is observed in the VGA Permeability (Figure 5.05e). Since the integration core is, by definition, the location closest to all others, the fact that the most integrated spaces are located in the main circulation system might indicate that this library's spatial configuration facilitates internal movement. Again, chapter 7 analyses of movement will address this in detail. In any case, this hypothesis (that internal movement might be facilitated by the spatial configuration) is strengthened by the high intelligibility ($r^2 = 0.68$) of the library (Figure 5.05f).

Aside facilitating movement, the fact that rooms, programmes and uses are opened to intervisibility between themselves might change how one understands co-awareness in this building. Visitors are aware of the activities that happen in their own spaces and of the activities happening in all their visible fields. In addition, this open visibility might facilitate staff control from distant locations. These aspects will be discussed in chapter 7.

It should be noted that the VGA Visibility performed in PB San Javier had to be adapted to fit the architectural characteristic of the 'cascading platforms' of the building. The half-floors were not considered as such in the analysis, in order to capture the phenomenon observed empirically (visitors can see through the sequence of platforms). This fact did not affect the permeability analysis.

Figure 5.06a: PB España is situated in the Comuna 1, one of the neighbourhoods that used to be among the poorest and most violent of Medellín (Montoya 2014). The building is easily accessible from the Metrocable Station of Santo Domingo Savio. The aerial photo exposes the density of occupation of the surrounding neighbourhood.

España Library-Park

España Library-Park[24] (Figure 5.06), hereafter PB España, was built in 2007, and it is the most famous Library-Park. It was designed by the architect Giancarlo Mazzanti and inaugurated by the King of Spain (hence the name of the library). Since it's opening, the library is often shown in postcards and other touristic media – a fact that contributes for its status as a touristic attraction. PB España is situated in the

24 Also known as "Santo Domingo Savio Library-Park". This research will also refer to this Library-Park as 'PB España'.

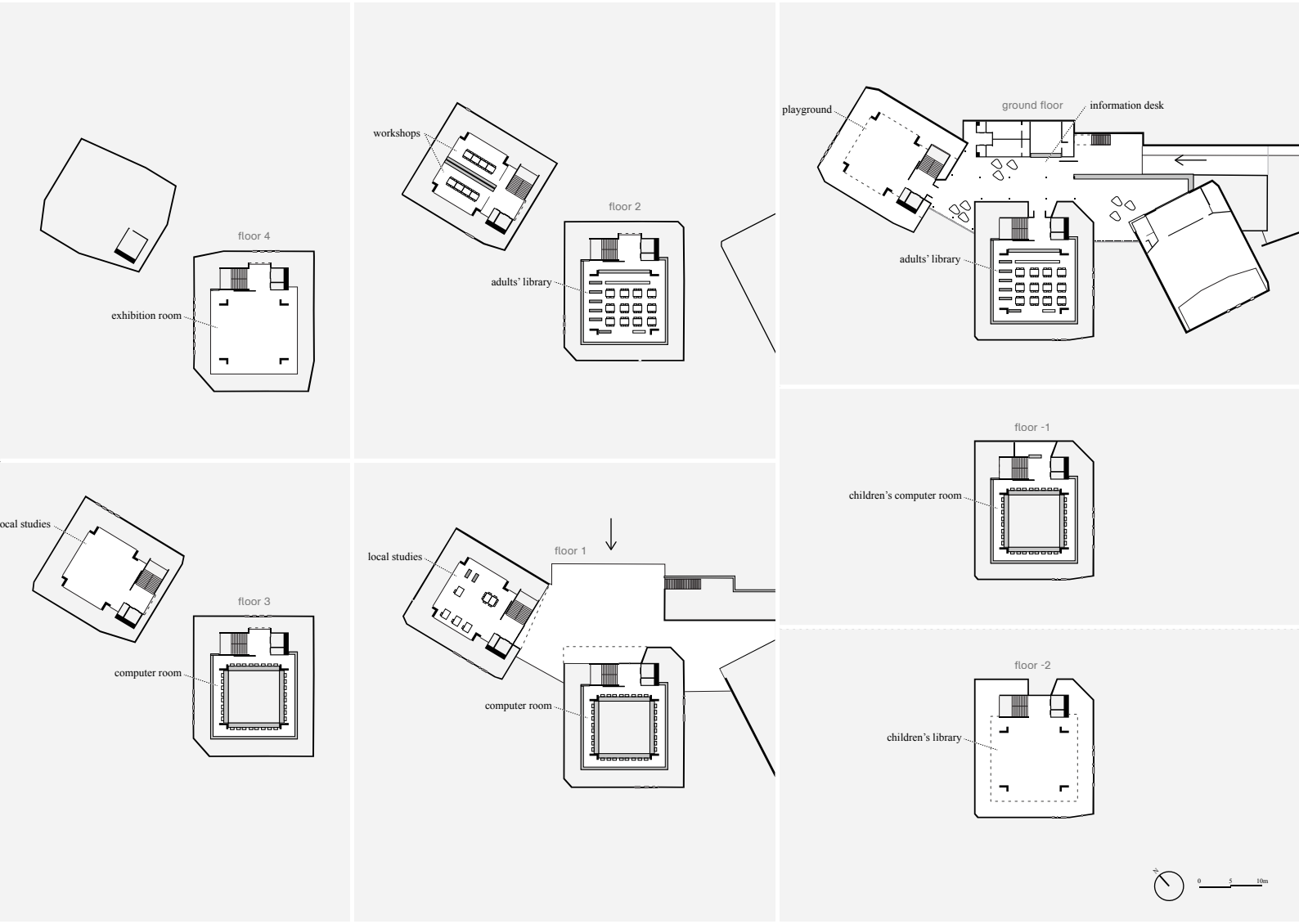


Figure 5.06b: Plans of PB España, with indication of programmes.

Comuna 1, one of the neighbourhoods that used to be among the poorest and most violent of Medellín (Montoya 2014). The library is easily accessible through the newly constructed line of Metrocables (aerial cable cars) that connect the main Metro line to the dense Comuna of Santo Domingo. Indeed, the library is part of the urban upgrading transformations of this neighbourhood, which links in a sequence: public library, school, station, and new urban public spaces.

The architect described his intentions and design process in a wide circulated online magazine of architecture[25] (Mazzanti 2008). His main intention was for the library to resemble rocks[26], which would create an ambiguity between the idea of

25 Archdaily

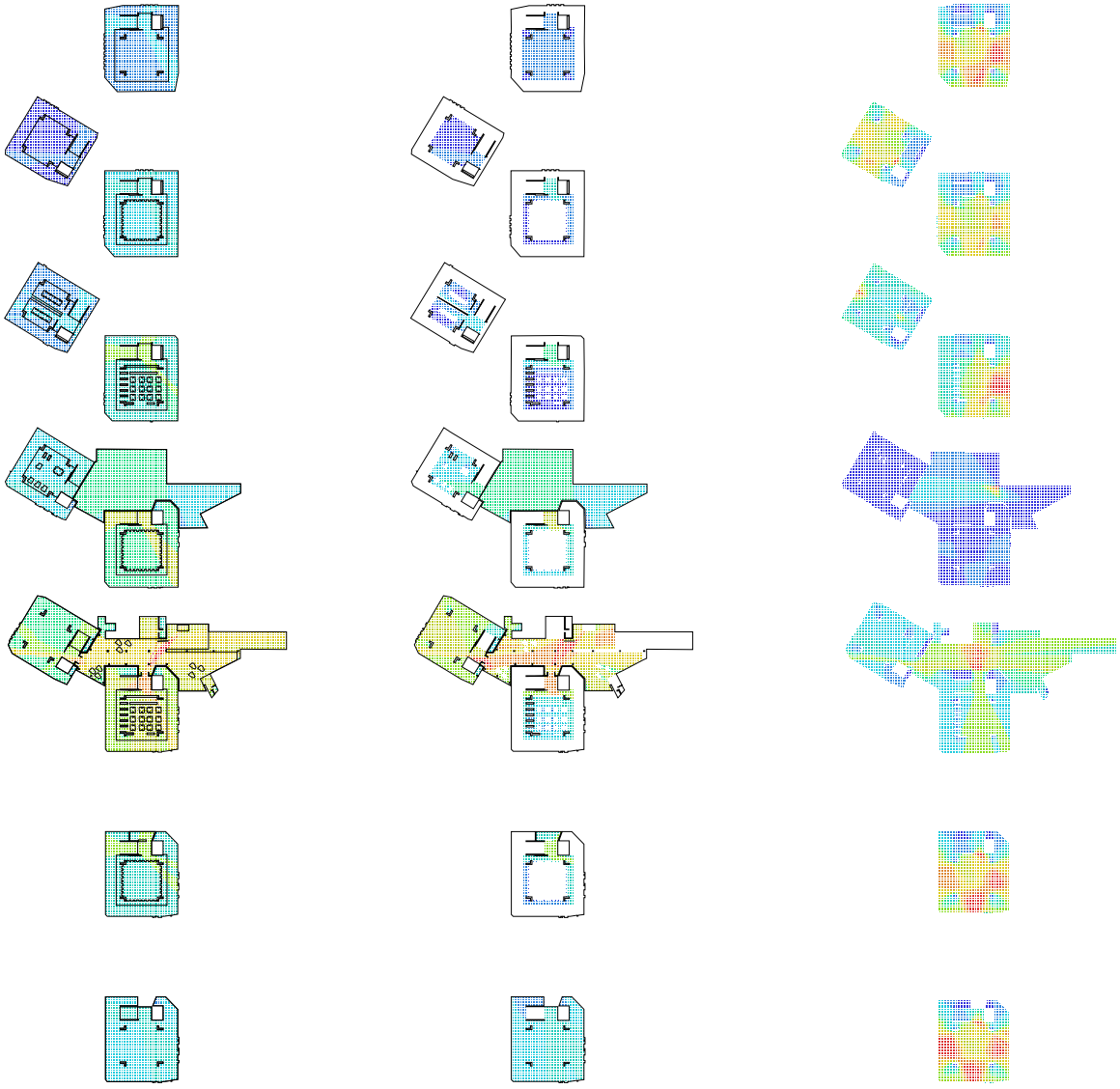
26 He also emphasises the idea that these are 'artificial rocks' in another publication (Mazzanti 2009).

Figure 5.06c: External view and 3D axonometric study of PB España. The building's form may be described as 'three towers' that distribute the programmes in a tree like configuration. (Source of photo: Wikipedia, accessed on 15/05/2016)

Figure 5.06d: Photos of PB España. (a) View from the main entrance hall, with the furniture for 'informal use'. (b) One of the computer rooms, showing the void between interior space and external facade. (c) One of the workshops. (d) Study spaces in the adult libraries.

building (foreground) versus landscape (background) (Mazzanti 2008). Aside this possible metaphor, the building creates a contrast with its surroundings, becoming a landmark in the neighbourhood (Figure 5.06c). Its form may indeed be described as 'three towers' that distribute the programmes in a tree like configuration (Figure 5.06c). These three towers are united by a platform that has two floors. The top one is an open public space that works as a place for fairs and other events as well as a belvedere to view the valley below. The platform below this belvedere is the actual entrance to the library, which provides access to each of the towers. PB España is the only library where the 'actual entrance' coincides with the separation between outside/inside of the complex. The programmes are distributed in the towers one per floor (the workshops have two separate rooms in the same floor). The next chapter will provide a more detailed analysis and discussion about the distribution of programmes.

This breakdown of the library into many floors does not only impact on the distribution of programme, but also in the pattern of visibility. VGA Visibility and



(a) (b) (c)

Figure 5.06e: Visual Graph Analyses (VGA) of PB España, showing most integrated areas in hot colours and most segregated in cold colours. (a) Shows VGA for visibility. (b) Shows VGA for permeability (considering barriers for movement, for example glass divisions, voids, low walls and railings). (c) Visual Graph Analysis (VGA) Visibility of PB España floor per floor, showing most integrated areas in hot colours and most segregated in cold colours.

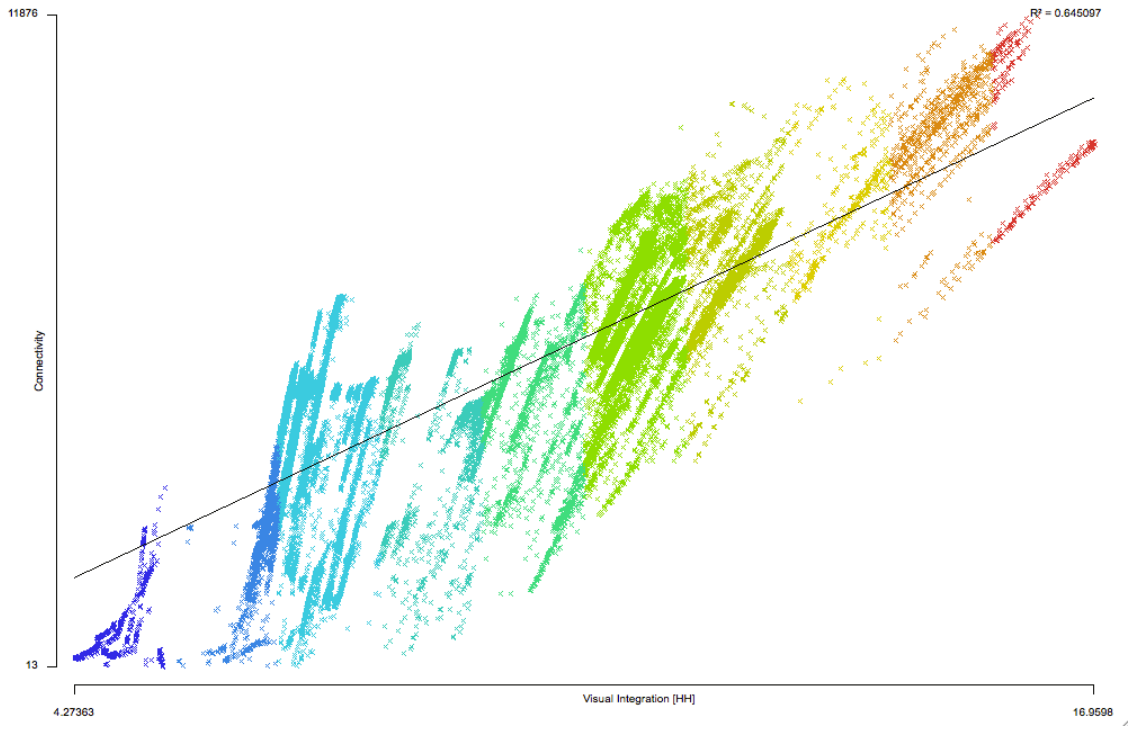


Figure 5.06f: Intelligibility of PB España. In space syntax, intelligibility is calculated as the correlation between integration (which is a global measure of how close a space is to all others) and connectivity (which is a local measure of how many spaces are directly accessible from a given space).

Permeability (Figure 5.06e) show that integration picks up the entrance platform as the most integrated space, and the top floors of the towers as the most segregated spaces. VGA Permeability is particularly interesting, as it shows that the circulation system is actually the most integrated space in the floors: even in the most integrated floor (which is the entrance platform), integration is lower in the programmed areas. This fact might impact in the pattern of use and co-awareness of the programmed spaces. Since these programmed spaces are vertically separated by the many floors and since they are segregated areas (in terms of VGA Permeability), I may suggest that co-awareness in these areas will be about people doing the same programmed activity. In other words, PB España is very different from PB San Javier, where we could imply almost the opposite (that co-awareness in a particular room or programme includes people from different programmes). Moreover, both buildings are highly intelligible (Figures 5.05f and 5.06f).

Furthermore, since the building is partitioned in many floors, one may interrogate how to interpret the VGA visibility that links all floors. I should note that in the analytical process, in order to be consistent among cases and in relation

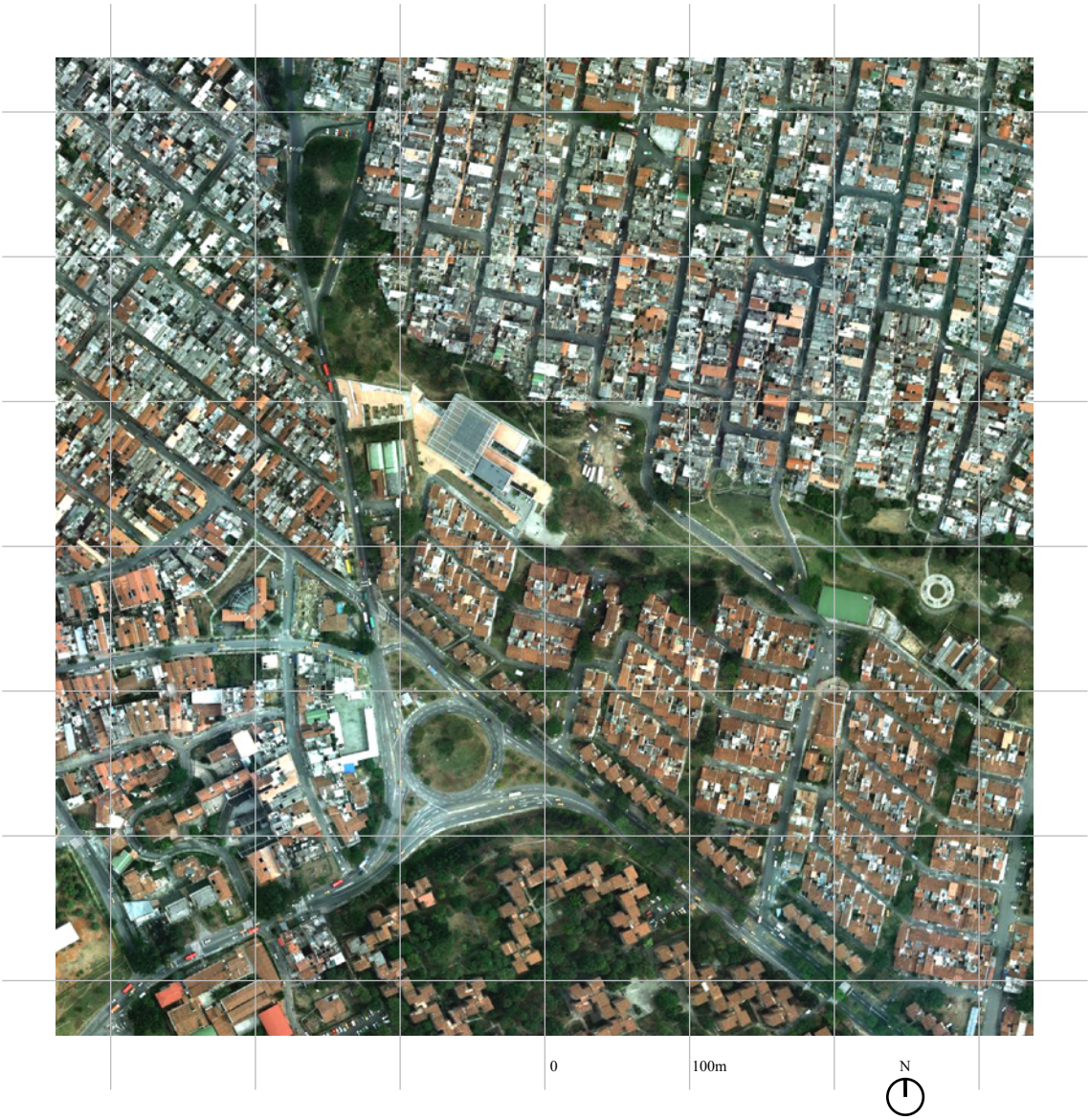


Figure 5.07a: PB La Quintana is situated in between Comunas 6 and 7 ("Doce de Octubre" and "Robledo").

to other space syntax studies, the floors are linked by their vertical connections. This is obvious for the case of analysing permeability, but it might not be obvious for the analysis of visibility, particularly when vertical connections (stairs, ramps or lifts) break the continuity of the visual field up to a point that one may even suggest it splits it into two (or more) separate environments. This may be the case in PB España. Figure 5.06f shows the analysis of VGA Visibility floor by floor (analysis [c] in Figure 5.06f), that is, each floor analysed as if it was a separate environment inaccessible to the one below. In this case, each floor has its own integration core and segregated areas. What is then interesting is to compare the global level of potential movement (VGA Permeability, Figure 5.06f, analysis [b]) and the local level of visual awareness (VGA Visibility floor-by-floor, Figure 5.06f, analysis [c]), which captures the intricate

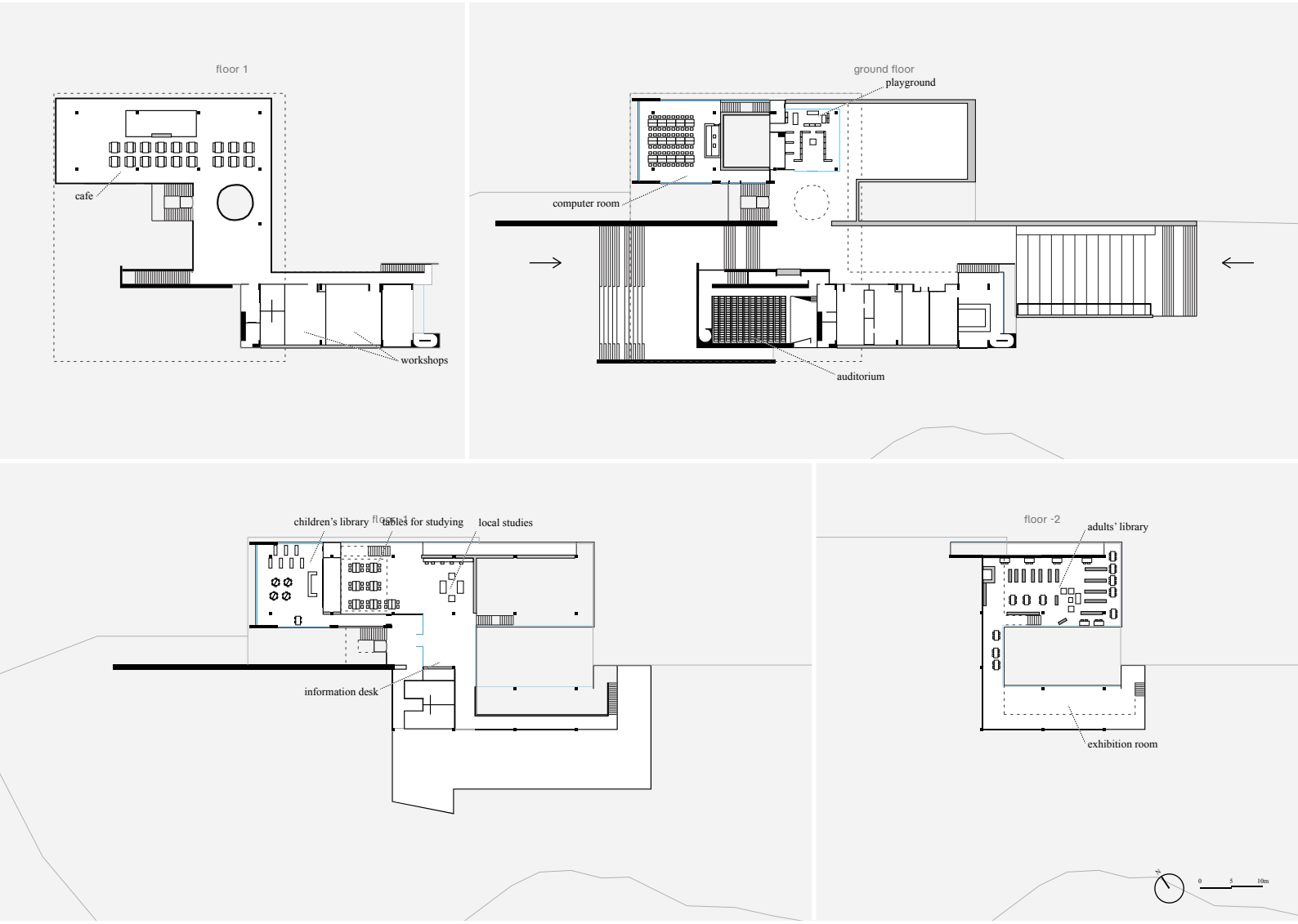


Figure 5.07b: Plans of PB La Quintana, with indication of programmes.

experience of a potential visitor that, by moving through the building, is exposed to local scenarios of visibility and co-awareness. The effects of these spatial qualities in the use of the building will be addressed in chapter 7.

La Quintana Library-Park

La Quintana Library-Park[27] (Figure 5.07), hereafter PB La Quintana, is situated in between Comunas 6 and 7 ("Doce de Octubre" and "Robledo"). Montoya (2014) explains that this zone used to be one of the most violent of the city. It was designed by Ricardo La Rotta Caballero and built in 2007. The 'Red de Bibliotecas' website

27 Also known as "Tomas Carrasquilla Library-Park". This research will also refer to this Library-Park as 'PB La Quintana'.

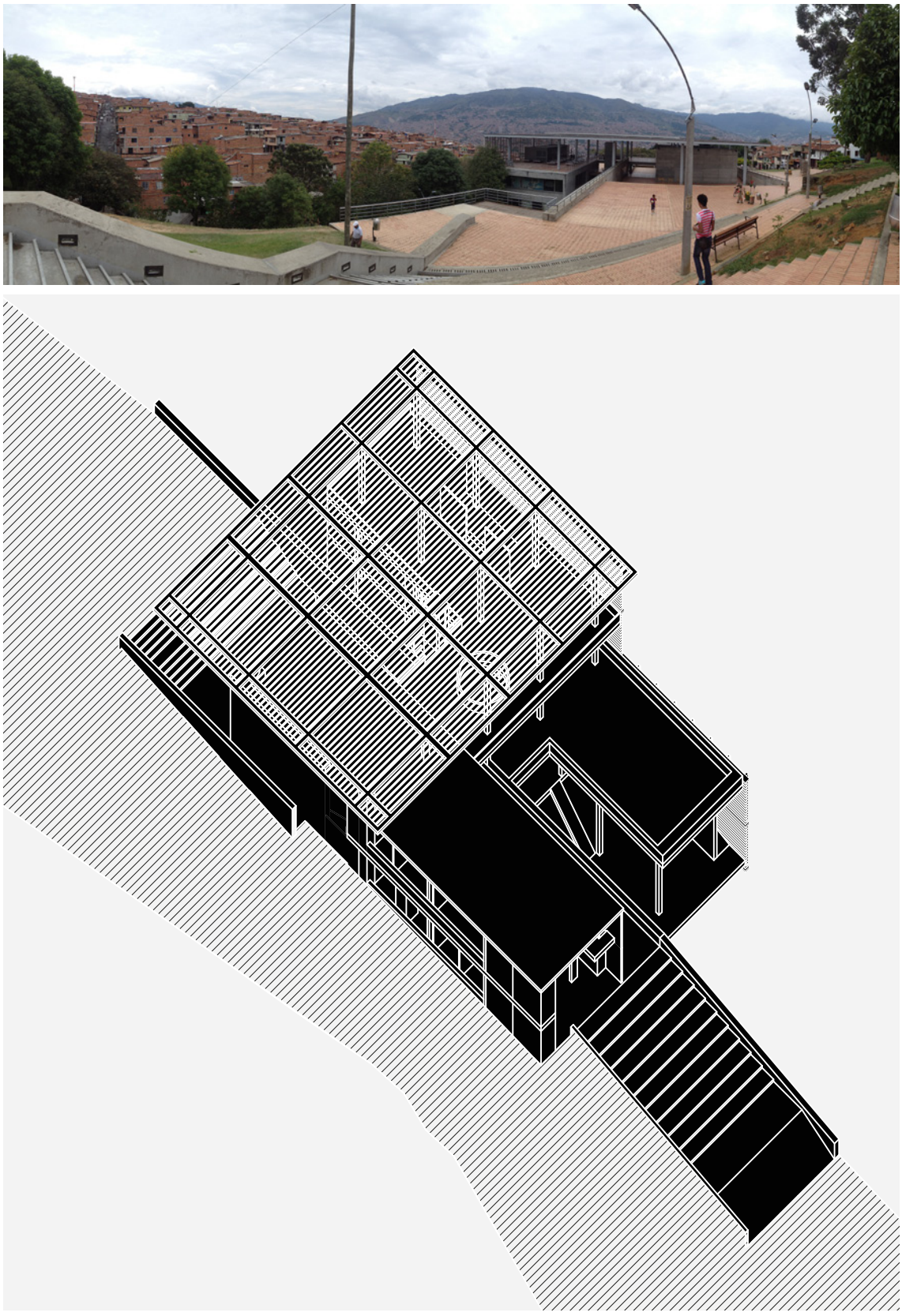
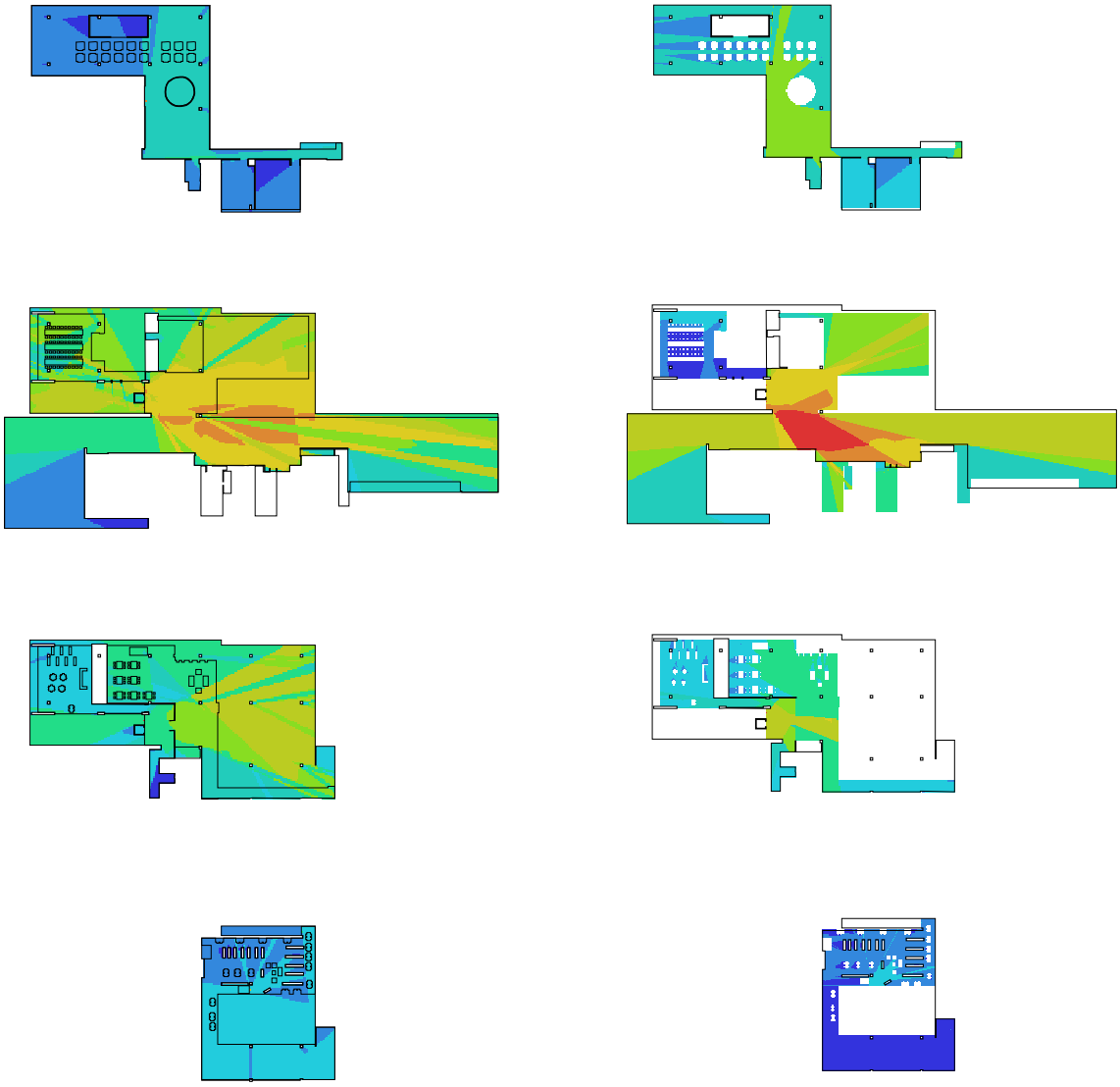


Figure 5.07c: External view and 3D axonometric study of PB La Quintana. The building's form may be described as 'cascading' plateaus (or platforms), which blur the separation of inside/outside the Library (the building works as an urban passage between adjacent streets), as well as the clear division of programmes.

Figure 5.07d: Photos of PB La Quintana. (a) View from the top floor (near the cafe), which shows the density of the neighbouring dwellings. (b) Entrance of the library (the stair from with the person in red is coming). (c) View of the building from the urban passage between adjacent streets. (d) Adult library and reading space, with furniture for both 'concentrated study' (desks) and 'relaxed study' (sofas).

defines it as a "new local centrality" for the surrounding communities (Red de Bibliotecas de Medellín 2013). This library is not located near a metro station or cable car station. Therefore, in order to access it from another part of the city, visitors have to take a bus. I should note that this might have an impact in the kind of visitor in the library. Buses in Medellín are considered dangerous and unreliable in comparison to the metro and cable car system (Coupé 2013). Therefore, if people live far from a Library-Park, they might prefer visiting one which is served by a metro station. In addition, tourists are probably following the same preference. In short, considering the transport options to access the library, one may suggest that PB La Quintana is mostly used by local population (at least in comparison with the libraries accessed by metro and metro cables).

In 2012, the building received honourable mention in the Colombian Architecture Biennale. In the catalogue of the exhibition, Caballero explains (2012) that the building's slabs are to resemble the cascades of a river that used to flow in



(a) (b)

Figure 5.07e: Visual Graph Analyses (VGA) of PB La Quintana, showing most integrated areas in hot colours and most segregated in cold colours. (a) Shows VGA for visibility. (b) Shows VGA for permeability (considering barriers for movement, for example glass divisions, voids, low walls and railings).

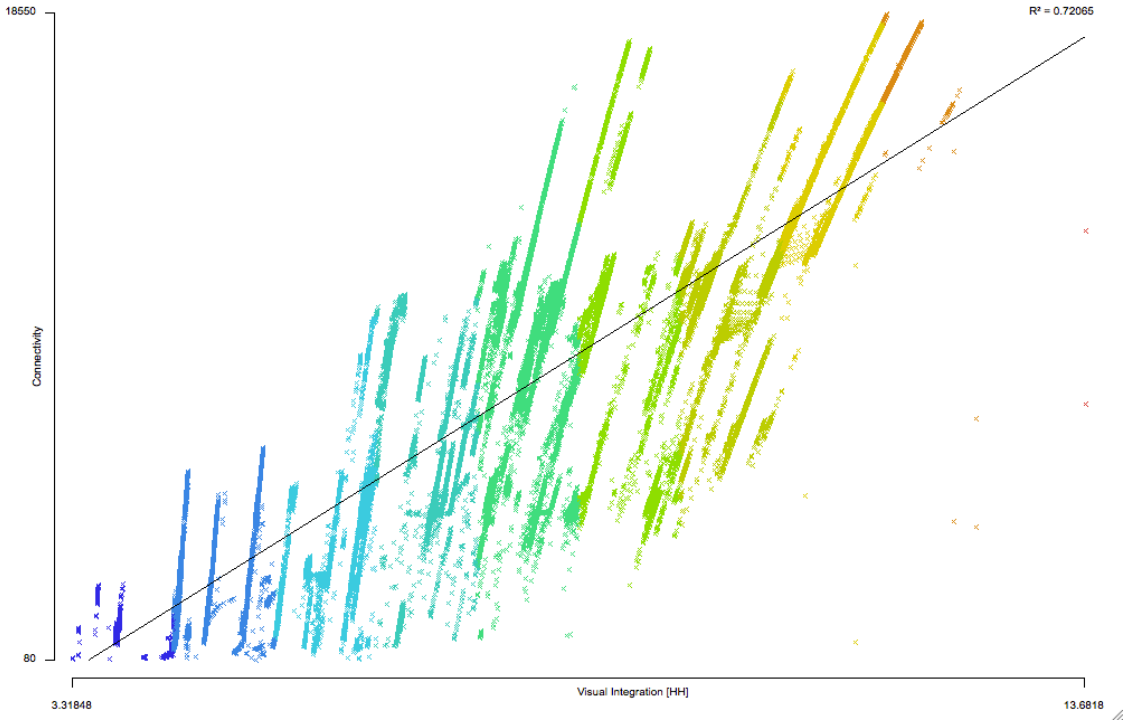


Figure 5.07f: Intelligibility of PB La Quintana. In space syntax, intelligibility is calculated as the correlation between integration (which is a global measure of how close a space is to all others) and connectivity (which is a local measure of how many spaces are directly accessible from a given space).

the same area. He then explains that the building has two main volumes: "the first, of passive nature, houses the library and adjusts visually to the landscape; [and] the second block, of an active kind, contains auditoriums, classrooms and business development centre which relates to the surrounding city". In Figure 5.07c we may see what the architect means as the two blocks. It also shall become clear what he means by 'passive' and 'active' nature of the building when we analyse the programmes (chapter 6) and uses (chapter 7) of PB La Quintana. In short, the programmes that are grouped in the 'passive block' are the ones that often the organisers of the Project of Library-Parks associate with 'formal learning', and the programmes grouped in the 'active block' are the ones that often the organisers of the Project associate with 'interactive learning' (Montoya 2014). Moreover, although the experience of visiting the building does not allow for a clear reading of the two blocks, the 'cascading platforms' are easily perceived (Figures 5.07c and 5.07d, photographs [a] and [c]).

The building forms a passage[28] between adjacent streets[29] and uses the inclination of the hill where it is situated to create plateaus and belvederes that provide a wide view of the Medellín valley (Figure 5.07c). These 'cascading' plateaus (or platforms) blur the separation of inside/outside the Library. In the entrance level (which I called 'ground floor'[30], although the concept of 'ground' may be misleading in the case of this library), visitors may access a number of programmes that are linked directly to the 'urban passage': an outdoor theatre (concrete stands that use the inclination of the hill), auditorium, playground and a space for the Comfama Fund's courses and consultation[31]. In addition, they may see the computer room, which although being on this floor, cannot be accessed directly. The first floor above this passage houses a café and entrances to the workshops. Many architectural characteristics make these two floors (ground and first floors) look more like an open urban space (a belvedere, for example) than part of the interior of a building. A first characteristic is that they have almost no walls (apart from the ones that form the volume of the auditorium and workshops), a fact that opens visibility of the whole city and the valley, and conversely opens them to be visible from the outside and the floors below (Figure 5.07d, all photographs). In fact, a second characteristic is the mismatching of floor slabs (Figure 5.07b), which is a recurrent characteristic in this library and which creates many vantage points in the floors that allow seeing floors above or below (5.07d, all photographs). Thirdly, the celling of the first floor, which is the roof of the whole complex, is a high one and works more like a pergola[32] than ceiling (as it allows daylight to penetrate the complex). Fourthly, the flooring material is a continuation of the same one used in the pavement of the streets, which gives the impression that visitors are still in the urban realm.

In order to access the 'actual entrance' to the library, visitors are required to go down the stairs to floor -1. An interesting aspect about PB La Quintana (which will also be seen in the next library, PB Belén) is that visitors are already very much 'inside' the building at this point of control. As I shall discuss in the next chapters, this aspect might impact in how visitors see the institutional control of the library over activities. In the floor of the 'actual entrance', visitors access the space for local

28 The architect calls this passage "a square and an indoor public street" (Caballero 2012).

29 If visiting the library from another part of the city, one may arrive from the nearest bus stop, which is located in the street above the level of the library.

30 In order to be consistent among cases.

31 Although the Comfama Fund was withdraw from the role of administrating the library, it still provide services for the community, having its own spaces in the same building as PB La Quintana.

32 This is the actual term used by the architect to define the roof: "Both blocks and the central course are covered and integrated by a large covered pergola which provides shade and coolness to users" (Caballero 2012).

studies, study room and information and issue desk. These spaces serve as the access to other programmes that go down one floor (adult lending library and exhibition room) or up one floor (computer room). The computer room is accessed by a stair which is different from the one visitors use to get to the 'main entrance' to the library. In other words, although being visible from the ground floor (as we mentioned), in order for visitors to access the computer room they are required to go down one floor, cross the 'main entrance' threshold, cross the spaces for local studies, and go up through another staircase. The impacts of these requirements to the access of specific programmes in the movement of the library will be analysed in chapter 7. In particular, chapter 7 will also address the impacts of the crossing of programmes in this targeted movement (e.g. visitors are required to cross the local studies to go to the computer room).

Again, the mismatching of floor slabs creates many visible connections between different floors in this part of the library after crossing the 'actual entrance' threshold. In addition to this characteristic, the ground and first floors have almost no walls and allow for vistas to the whole city. These two characteristics make the process of analysing and interpreting VGA Visibility (Figure 5.07e) a rather complex one. In terms of producing the analysis, VGA Permeability is not affected by these characteristics (although interpretation should take into account the effects of the VGA Visibility). However, PB La Quintana brings a real methodological challenge for the analysis of VGA Visibility: how to account for the blurred boundaries of the visibility field? How to account for the intervisibility between different floors? Finally, how to do so in a way that keeps consistency across cases? The current softwares cannot process these characteristics[33]. Nevertheless, what one may observe from the VGAs I could process is that both analyses (Figure 5.07e) pick up the centre of the main passage in the ground floor as the integration core (both in terms of visibility and permeability). In terms of permeability, the most segregated spaces are the computer room in the ground floor and the exhibition room in floor -2. Again the computer room becomes an interesting space which is segregated in terms of permeability, but visually accessible from the integration core. I discuss in more detail the effects of these mismatching characteristics of visibility and permeability when addressing the empirical data in chapter 7.

33 It should be noted that a very recent research conducted by Varoudis and Psarra (2014) is addressing these gaps (particularly intervisibility between floors).

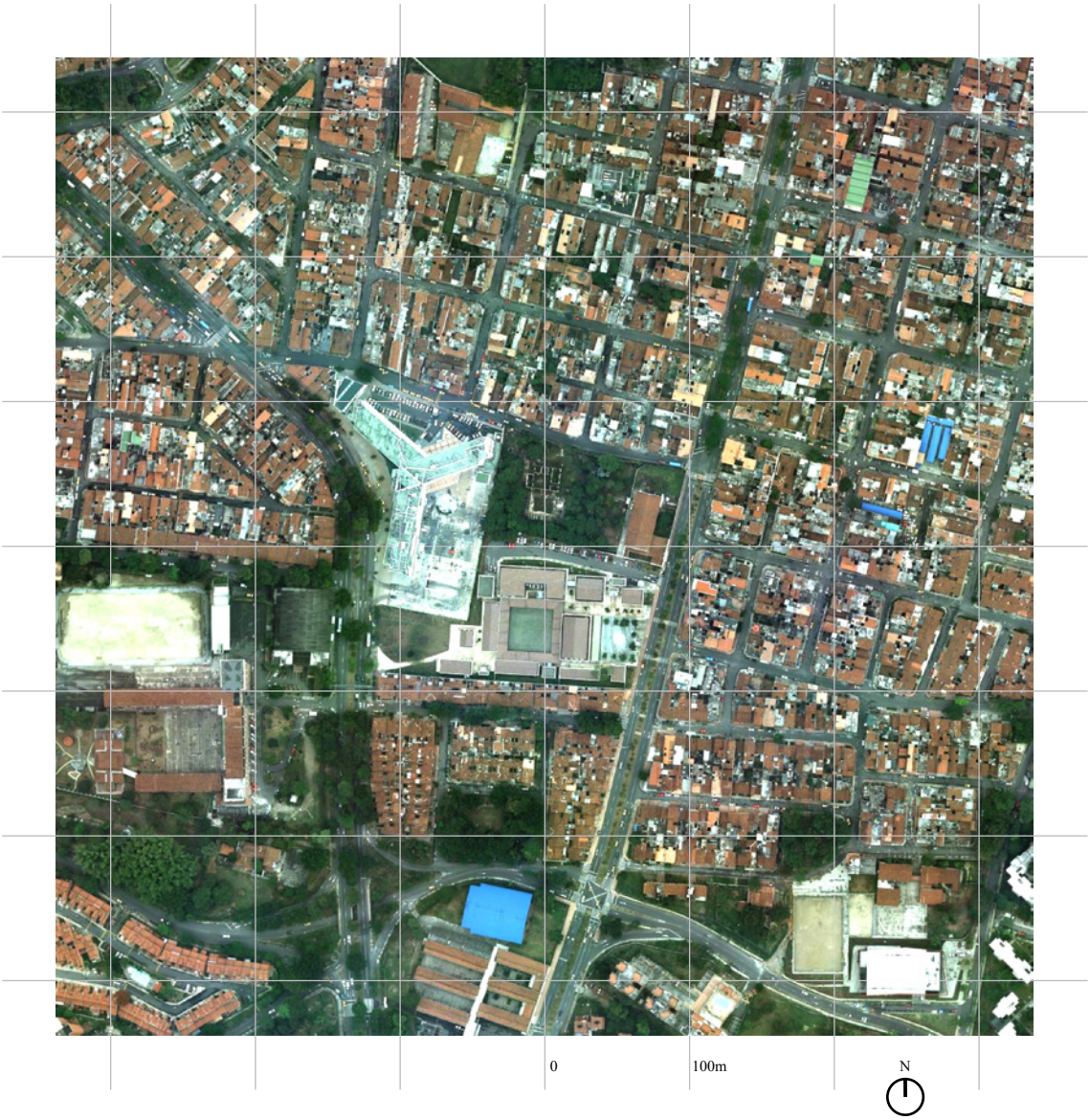


Figure 5.08a: PB Belén is situated in Comuna 16 and in between two streets, forming a public pathway.

Belén Library-Park

Belén Library-Park[34] (Figure 5.08) was built in 2008, and it is situated in Comuna 16. The library is situated in a plot that was associated with the practice of torture by the state in the second half of the 20th century (Montoya 2014). Again, the library is used as means to "change the meaning of the site for the population: from marks of violence to marks of culture" (Montoya 2014). Interestingly, the violence in this case originated from the state.

34 This research will also refer to this Library-Park as 'PB Belén'.

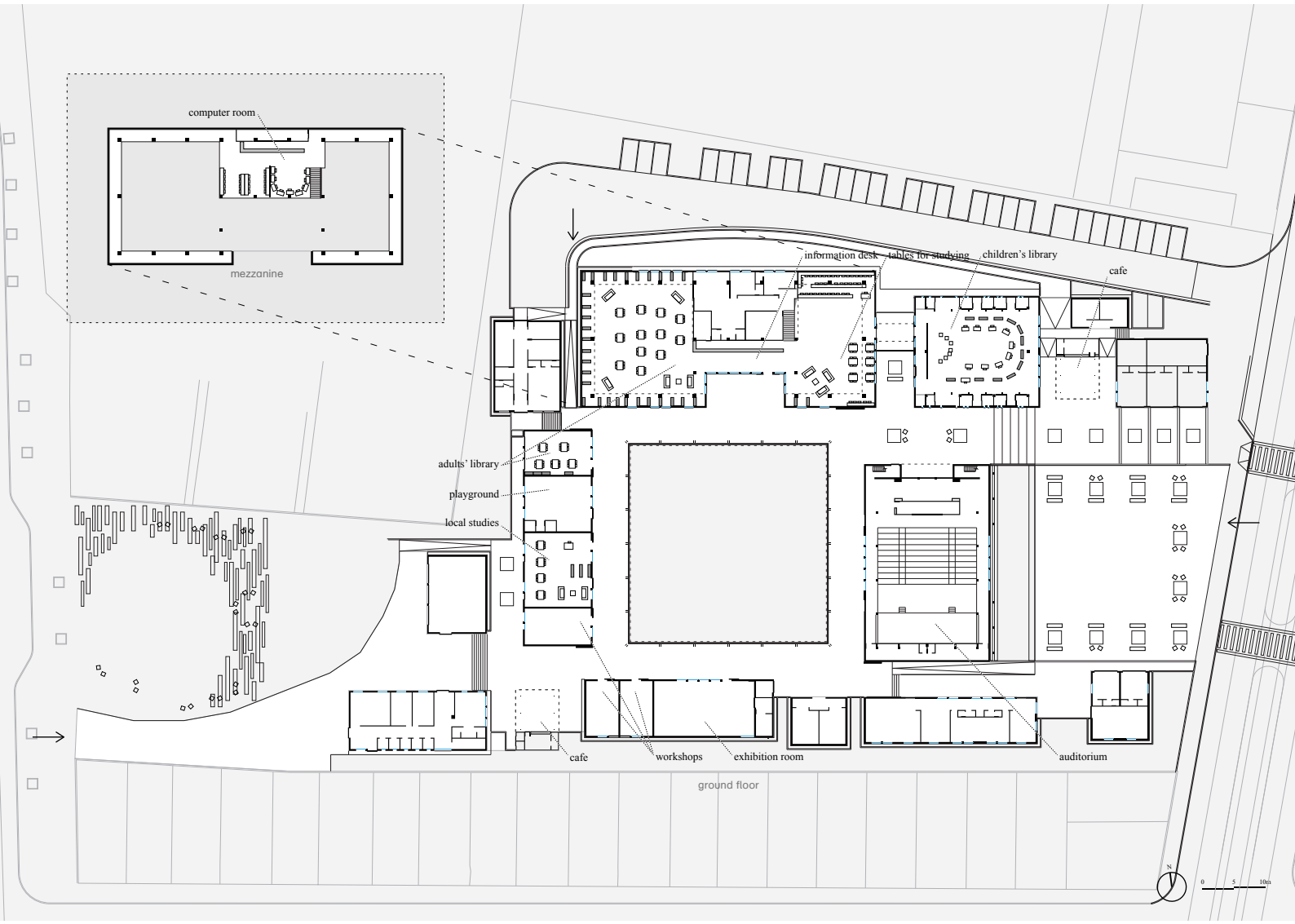


Figure 5.08b: Plans of PB Belén, with indication of programmes.

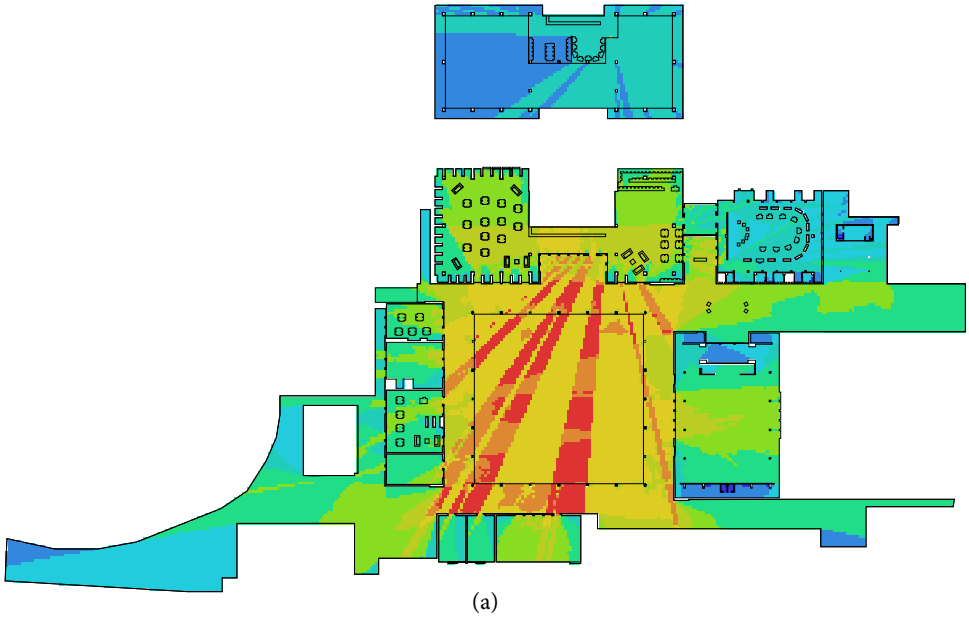
Similar to PB La Quintana, PB Belén is not accessible directly from a metro station and it also forms a passage in between two streets (Figures 5.08a, 5.08b and 5.08c). However, different from PB La Quintana, these two streets are very busy roads, a fact that generates movement of visitors to the library. Indeed, the building is constantly used as a public pathway. The library can be described as a collection of pavilions surrounding a courtyard with a reflecting pool (Figure 5.08c). The architect of this building is Hirochi Naito, who chose to design the library almost completely in one floor only (the only exception is a mezzanine for classes of informatics in one of the 'pavilions'). The programmes are organised in each of the pavilions and are accessed from the courtyard (Figure 5.08b): there are only a few cases where programmes can access each other directly (instead of through the courtyard). These

Figure 5.08c: External view and 3D axonometric study of PB Belén. The library can be described as a collection of pavilions surrounding a courtyard with a reflecting pool.

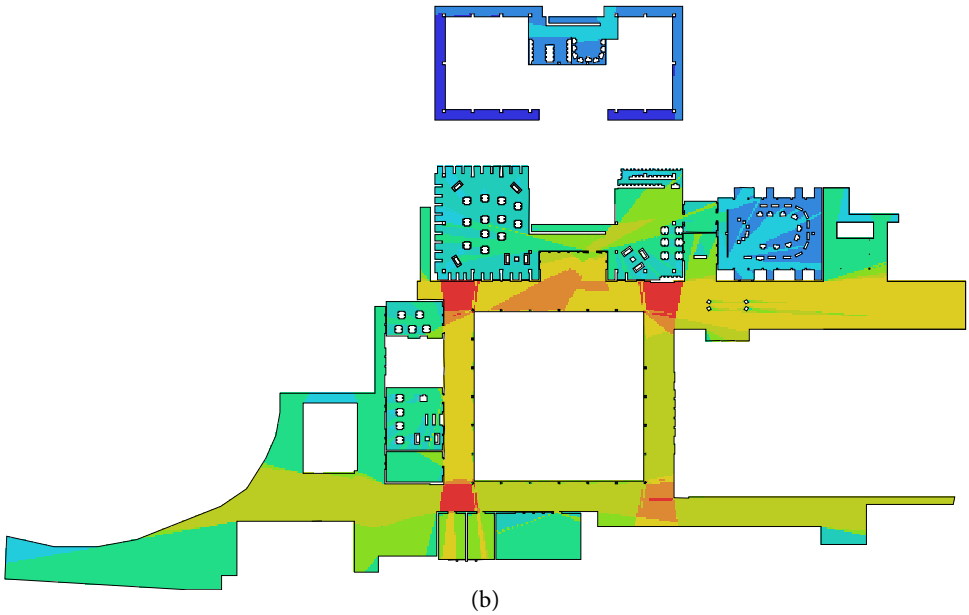
Figure 5.08d: Photos of PB Belén. (a) View from one of the entrances to the complex. (b) Entrance to the library from the courtyard with the reflecting pool. (c) Courtyard with reflecting pool forms an urban passage between adjacent streets. (d) In the ground floor, adult library and reading space, with furniture for both 'concentrated study' (desks) and 'relaxed study' (sofas); in the mezzanine, the computer room.

two aspects – the courtyard with a reflecting pool and the fact that it is almost entirely in one floor – create long distances in between programmes.

An interesting aspect about PB Belén (which is again similar to PB La Quintana) is that visitors are already very much 'inside' the building when they cross the 'actual entrance' of this library. As I showed in the case of PB La Quintana, this aspect might impact in how visitors see the institutional control of the library over activities. I discuss this topic in the next chapters, which provide empirical data and a more thorough analysis of the spatial organisation of programmes. A difference between PB Belén and PB la Quintana is that in the former the 'actual entrance' only separates the lending libraries and computer rooms from the rest of the building. In fact, it does not even separate the whole of the lending library, which is also housed in another room, accessible directly from the courtyard and without the same level of control of the 'actual entrance'. In the case of La Quintana, as we saw previously, the 'actual entrance' grouped lending libraries, local studies, exhibition room and computer facilities.



(a)



(b)

Figure 5.08e: Visual Graph Analyses (VGA) of PB Belén, showing most integrated areas in hot colours and most segregated in cold colours. (a) Shows VGA for visibility. (b) Shows VGA for permeability (considering barriers for movement, for example glass divisions, voids, low walls and railings).

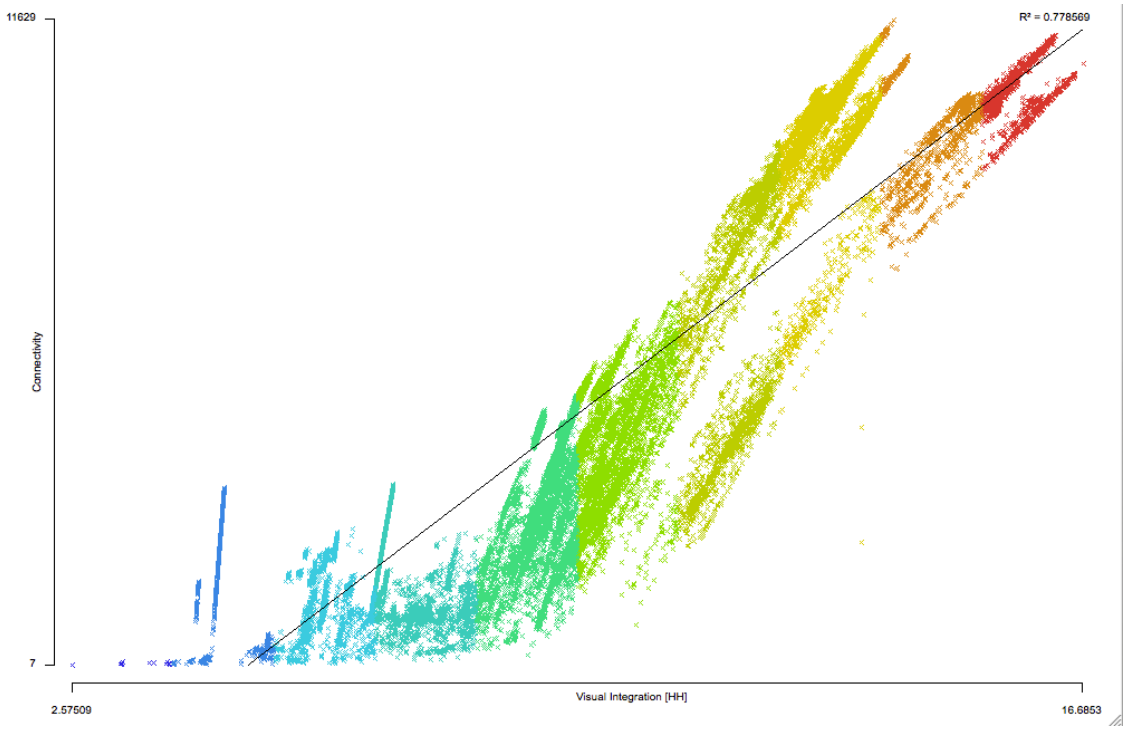


Figure 5.08f: Intelligibility of PB Belén. In space syntax, intelligibility is calculated as the correlation between integration (which is a global measure of how close a space is to all others) and connectivity (which is a local measure of how many spaces are directly accessible from a given space).

The VGA Analyses (both permeability and visibility) show that the spaces around the courtyard are the most integrated ones (Figure 5.08e). The analyses also show that the spaces programmed as children's library and the mezzanine with the computer room are the most segregated ones. It should be noted that, similar to PB La Quintana, this library's boundaries are not very well defined, which is a fact that impact in the results of VGA analysis. Nevertheless, what is observed is that integration concentrates in the courtyard and spreads radially to the programmed rooms (which are connected to the courtyard). The programmes that are most distant to the courtyard are therefore the most segregated ones. The effects of such a condition in the daily use of the library will be analysed at length in chapter 7.

Figure 5.09a: PB Fernando Botero is situated in a very steep hillside, and uses this condition to create different entry points in different levels.

Fernando Botero Library-Park

Fernando Botero Library-Park[35] (Figure 5.09) was the first library of a second phase of constructions of Library-Parks. It is the only library (among the studied ones) which was not built in a site related to a history of strong violence. The main reason for the location of this library was the historical state negligence to the poor conditions of the surrounding population (Montoya 2014). It was designed by G-Ateliers in collaboration with the surrounding communities (San Cristóbal neighbourhood). Herman Montoya (2014) explains that, although the process of

35 Also known as "San Cristóbal Library-Park". This research will also refer to this Library-Park as 'PB Fernando Botero'. The name is in homage to the famous Colombian painter.

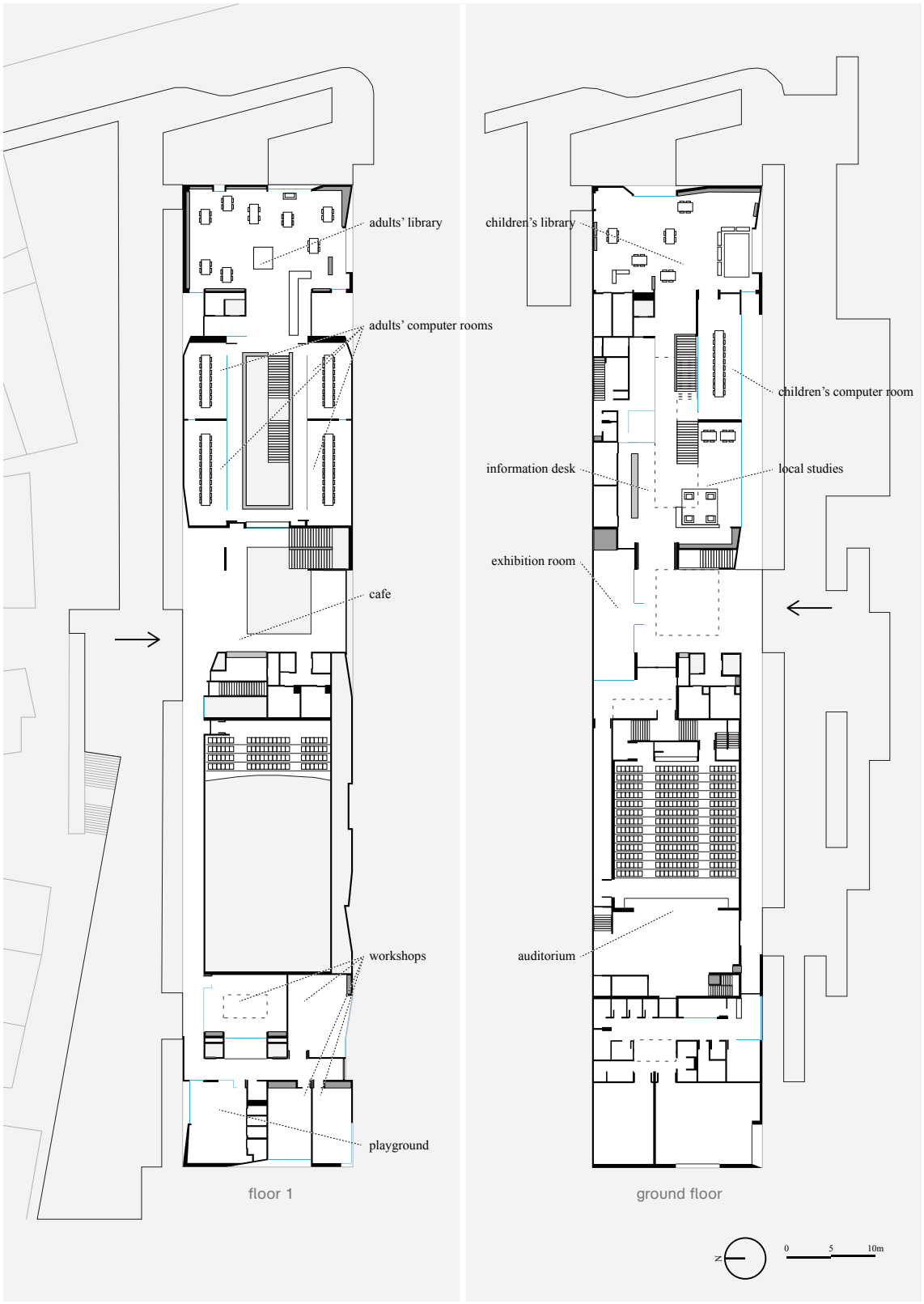


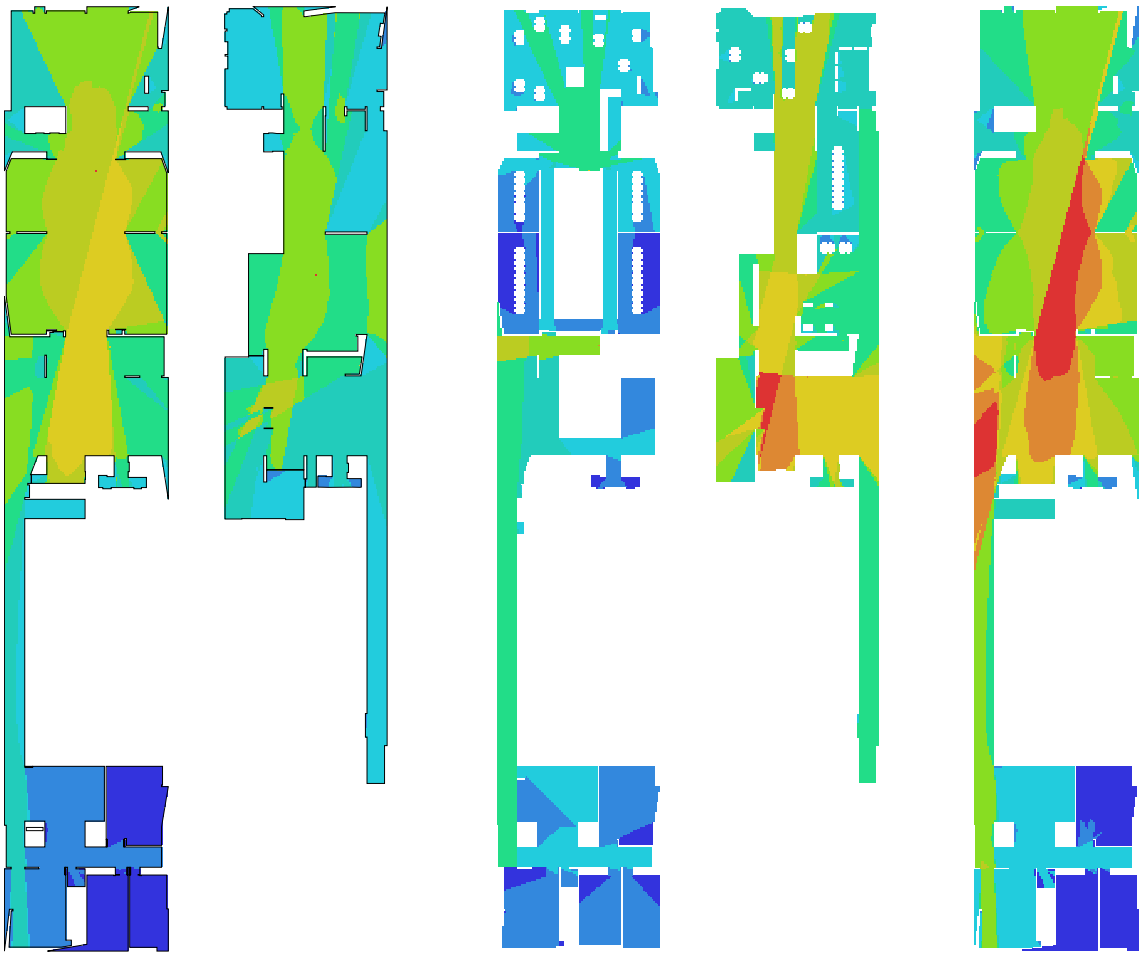
Figure 5.09b: Plans of PB Fernando Botero, with indication of programmes.

Figure 5.09c: External view and 3D axonometric study of PB Fernando Botero. The library accommodates the various programmes into a rectangular prism that is accessed from the middle of the long side. The various openings (balconies, windows, and doors) break the flatness of the façade with a complex composition of apparently random shapes. Source of photograph: http://www.plataformaarquitectura.cl accessed on 03/04/2014.

Figure 5.09d: Photos of PB Fernando Botero. (a) View from one of the entrances to the complex. (b) Entrance to the library from the courtyard with the reflecting pool. (c) Courtyard with reflecting pool forms an urban passage between adjacent streets. (d) In the ground floor, adult library and reading space, with furniture for both 'concentrated study' (desks) and 'relaxed study' (sofas); in the mezzanine, the computer room.

designing each Library-Park had a participatory element, PB Fernando Botero was the only one (among the studied libraries) where this participation actually changed some of the original plans. Due to this collaboration, some of the programmes of the library were re-sized to attend the actual demand of the neighbourhood. For example the auditoriums in the first libraries are considerably smaller than the one in Fernando Botero.

This building is situated in a very steep hillside, and uses this condition to create different entry points in different floors. The library accommodates the various programmes into a rectangular prism that is accessed (the entrances) from the middle of the long side, in both sides of the prism (Figure 5.09c). The various openings (balconies, windows, and doors) break the flatness of the façade with a complex composition of apparently random shapes (Figure 5.09c). This composition hides the programmatic division of the building, which may be simplified in two main blocks (a division which is similar to PB La Quintana): a first one which houses auditorium,



(a) (b) (c)

Figure 5.09e: Visual Graph Analyses (VGA) of PB Fernando Botero, showing most integrated areas in hot colours and most segregated in cold colours. (a) Shows VGA for visibility. (b) Shows VGA for permeability (considering barriers for movement, for example glass divisions, voids, low walls and railings). (c) Visual Graph Analyses (VGA) Visibility of PB Fernando Botero's first floor only, showing most integrated areas in hot colours and most segregated in cold colours.

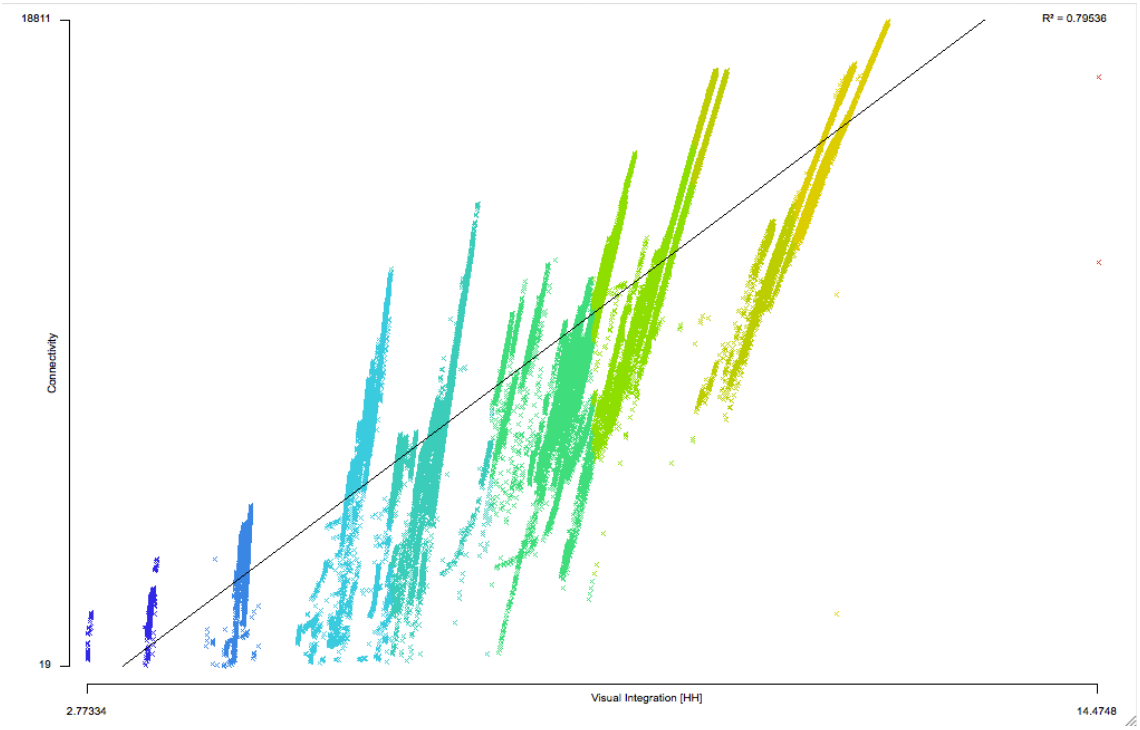


Figure 5.09f: Intelligibility of PB Fernando Botero. In space syntax, intelligibility is calculated as the correlation between integration (which is a global measure of how close a space is to all others) and connectivity (which is a local measure of how many spaces are directly accessible from a given space).

café and workshops; and another one that houses the lending libraries, computer rooms, and local studies. The next chapter will analyse and discuss the distribution of programmes in more detail. These blocks are linked by the main entrances which form a lobby space that has two floors. In the ground floor, this lobby space offers access to the 'actual entrance' of the library, to the auditorium and exhibition space. In the first floor, the lobby houses the café and it is linked to the corridor that leads to the workshops and playground. From this floor visitors may have a view of the valley below (from a space that works as a balcony) and can also see the interior of the library through a glass division.

The VGA analyses show interesting aspects of the building (Figure 5.09e). VGA Permeability (5.09e, analysis [b]) shows that the spaces around the lobby, right in front of the 'actual entrance', are the most integrated ones. Integration than spreads through the ground floor linearly until the back wall, crossing the information and issue desk and reaching the children's library. In terms of permeability, the first floor is less integrated than the ground one. In fact, the most segregated areas are

in this floor, namely the workshops and computer rooms. It is therefore interesting to compare this distribution of integration with the one that VGA Visibility shows. VGA Permeability and VGA Visibility only coincide in showing the same areas as most segregated: the workshops in the first floor. However, in terms of visibility it is the first floor which is more integrated. This is probably due to the fact that visibility crosses the glass division of the lobby (in the first floor) and create a long line of sight from the back wall of the adult lending library until the corridor that leads to the workshop (this line is more easily seen if one looks at the VGA Visibility of the first floor alone, shown in Figure 5.09e, analysis [c]). These long lines of sight may facilitate movement inside the building. Again, Chapter 7 analyses of movement (and other social practices) will address this in detail. In any case, this hypothesis (that internal movement might be facilitated by the spatial configuration) is strengthened by the very high intelligibility ($r^2 = 0.79$) of the library (figure 5.09f).

Notes about comparing the libraries

The problem of 'how comparable between each other the Library-Parks are' is in fact a fundamental part of this research. Are the Library-Parks the same type of building, so that their functioning can be compared and ranked? Or do their differences in the organisation of architectural space and programme allow them to become fundamentally different institutions, and thereby incomparable kinds of public architecture? These are questions that the analyses carried out in chapters 6 and 7 will help addressing. It is possible to identify contextual similarities between the Library-Parks that enables a comparative study. In particular, they may be considered similar in terms of the demographic profiles of each building's neighbourhood, cultural background and political period. In addition, as said previously, the libraries are the result of the same social and political Project and therefore may be compared in relation to their common goal.

In terms of area, it should be noted that PB San Javier and PB España are approximately 40% smaller than the other ones[36]. However, despite differences in floor area, the libraries are similar in terms of size of physical collection, apart from

36 PB San Javier and PB España have (each) 2300sqm approximately, while the other Library-Parks have (each) 3700sqm approximately.

PB Fernando Botero: in 2013, PB San Javier offered access to 20122 items, PB España offered access to 22494 items, PB La Quintana offered access to 19479 items, PB Belén offered access to 23562 items and PB Fernando Botero offered access to 7015 items (Sistema de Bibliotecas Públicas de Medellín – Secretaría de Cultura Ciudadana – Alcadía de Medellín 2013). In other words, in 2013, PB Fernando Botero offered approximately a third of the average number of items offered by the other libraries. A possible explanation for this difference is that PB Fernando Botero is the most recently constructed library (among the ones I analyse). Therefore, the smaller size of the collection could be explained by this fact: they would have had less time to acquire physical items than the other libraries. However, the fact that PB Belén, which was constructed only one year prior to PB Fernando Botero, has the largest collection refutes this hypothesis. As said previously, it should be reminded that PB Fernando Botero is the first of a second phase of construction of libraries, which included more elements of participatory planning with the local communities (in comparison with the process of construction of the four other libraries analysed) (Montoya 2014). In other words, this difference in size of physical collection may be indicative that the local populations would rather value other activities than the collection. Indeed, Montoya explained (2014) that the sizes of the auditorium and the spaces for dance and music classes of PB Fernando Botero are considerably larger in comparison to the previous libraries.

Another aspect to be considered refers to the institutional administration of the libraries. Although it is not part of the scope of this research to investigate about them, understanding their overall differences is fundamental for an investigation about the use of the buildings by the visitors (which is what this thesis focus on). Montoya explains (2014) that originally the libraries were administrated by the two main 'Family Compensation Funds' ("Cajas de Compensación Familiar"), Comfama and Comfenalco. These Funds are governmentally mandated, private sector institutions that hold a small percentage of the total salary paid by a firm to its workers and use it to provide cash subsidies and different types of cultural and social services to affiliated workers[37] (Hanratty and Meditz 1988; Comfenalco Antioquia 2011). In

37 For example, they work as touristic agencies, local banks, mortgage banks and school for adults. In addition, they manage libraries, schools, hospitals, pharmacies, dental units, general medical consultation services, and outpatient health care centers for children and nonworking spouses (Hanratty and Meditz 1988; Comfenalco Antioquia 2011).

this sense, these Funds work as "a private component of the urban social security system, managed jointly by unions or workers, firm owners, and the government" (Hanratty and Meditz 1988). Montoya explains that Comfama and Comfenalco were chosen to administrate the Library-Parks because these Funds had already an established presence of almost 40 years within the targeted neighbourhoods and, particularly important for the case of the implementation of the Library-Parks, they already administrated local libraries. Montoya highlighted, moreover, that Comfama and Comfenalco have very different administration cultures in regards to the management of libraries. Comfama received four Library-Parks to administrate, namely PB San Javier, PB España, PB La Ladera and PB La Quintana[38]. Comfenalco received only one Library-Park to administrate, namely PB Belén. Montoya explains that, by the time the Project was going to construct the second phase of Library-Parks (which included, for instance, the PB Fernando Botero), the local communities made an official request to not be administrated by the Funds. The main issue was regarding the feeling of ownership of the libraries by the local population. The communities argued that they wished that the libraries were 'theirs', and that the style of administration and control imposed by the Funds produced the impression that the libraries were owned by the Funds. The disagreement was mainly with the style of administration of Comfama and therefore this Fund was withdrawn from the role of managing the libraries. In fact, the fieldwork of this research happened during a period of transfer of administration from Comfama to the Municipality of Medellín. The fieldwork happened in 2014, only a year after PB La Quintana, PB España and PB La Ladera were transferred to the Municipality. PB San Javier was transferred to the Municipality after the fieldwork. In summary, the institutions that administrated the libraries during fieldwork are the following: Comfama administrated PB San Javier; the Municipality of Medellín administrated PB España, PB La Quintana and PB Fernando Botero; and Comfenalco administrated PB Belén (and remained being the only Fund that administrates a Library-Park). In other words, two libraries were administrated by the private sector (the Funds), namely PB San Javier (Comfama, which was criticised as to its controlling style of administration) and PB Belén (Comfenalco, which established a positive relationship with the local population and

38 Montoya explains (2014) that Comfama managed these libraries based on its own experience with the "Recreational Libraries" (which were administrated by Comfama prior to the Library-Parks).

therefore was not criticised (Montoya 2014)), and three libraries were administrated by the public sector (the Municipality of Medellín). The impacts of these differences in administrative culture on the actual use by the visitors are exposed by the analyses presented in chapter 7.

Chapter 6
Analyses of space and programme

This chapter looks at the five Library-Parks presented in the previous chapter in order to address the research questions: *how different are the Library-Parks in relation to their arrangements of spaces and programmes*; and secondly *what kinds of patterns of co-inhabitation may be retrieved as implicit in each of these arrangements*? More specifically, it focuses on how particular spatial properties in these buildings can influence the way in which they work as informal spatial and social environments and how they accommodate different purposes.

Considering this chapter's scope, it might be worth looking again to the purposes of these buildings. These buildings have the threefold purpose of functioning as (i) formal learning facilities; (ii) interactive learning facilities and (iii) extension of public space. In the previous chapter, we saw that in PB La Quintana, the architect intended to organise the form of the library according to this threefold purpose. As said in the case of PB La Quintana, the programmes that are grouped in the 'passive block' (as described by the architect) are the ones that often the organisers of the Project of Library-Parks associate with 'formal learning', and the programmes grouped in the 'active block' are the ones that often the organisers of the Project associate with 'interactive learning' (Montoya 2014). The architect of PB La Quintana also gives importance to the role of 'extension of public space', suggesting that the two blocks ('passive' and 'active') are linked by a passage that works as "a square and an indoor public street" (Caballero 2012). One may then use this conceptual groups of programmes to analyse the libraries. The programmes in all buildings may be transpatially grouped considering the first two purposes: 'Reference Library', 'Studying Area', 'Local Studies', etc. are programmes grouped to fulfil the purpose of these buildings to function as (i) *formal learning facilities*. A second group of programmes – namely, 'Computer Room', 'Workshops', 'Cafes', 'Playgrounds', 'Auditorium', etc. – relate to these buildings functioning as (ii) *interactive learning*

Programmes can be abstractly grouped together (...)

(...) but this group may not correspond to direct spatial associations.

Figure 6.01: Diagram expressing a possible non-correspondence of abstract associations of programmes with their spatial associations.

facilities. Furthermore, the remaining unprogrammed areas of the buildings – such as corridors, courts, stairs, etc. – refer to the buildings functioning as (iii) *extension of public space*. Therefore, a first issue derived from the questions raised above refers to how each group of programmes ([i] and [ii]) is distributed in the buildings, and how they spatially relate to one another. Groups or sequences of programmes defined abstractly may or may not correspond to spatial associations and sequences (Figure 6.01). As an example, I propose the illustrative case in Figure 6.01. In order to fulfil its role as 'formal learning facility', the library has programmes that relate to this particular demand, for example: 'issue desk', 'adult library' and 'tables for studying'. One may say that they are transpatially linked by this role. However, in space, these programmes might not be directly connected (as the right-hand diagram of Figure 6.01 shows). This mismatch is not seen as a problem, but as an indicator, for instance, of the mixing or segregation of programmatic areas and possible types of visitor. I discuss this topic in more detail (and through less polarised descriptions of the effects of the placing of programmes in space) throughout the analysis.

In order to address these problems, the analysis starts by understanding each building as systems of convex spaces. Then the different programmes are mapped in relation to this convex system. This mapping is then studied through two main groups of analyses between the programmatic descriptions and the configurational properties of each space: firstly, programmes are described regarding their topological types [a], [b], [c] and [d] (Hillier 1996) and their topological step depth from the entrance

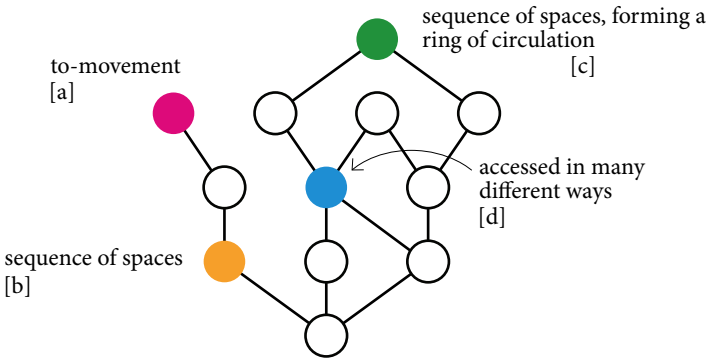


Figure 6.02: Topological differences indicate whether programmes function as to-movement or through-movement; and whether they are laying in a sequence of spaces, or they can be accessed by many different ways.

(section 6.1), as these indicate general constraints of occupation and movement as well as indicate spatial groupings and sequences of programmes. Secondly, the chapter looks at the integration values for different programmes, indicating types of Library-Parks based on these asymmetries (section 6.2). Particular attention is given to describing some affordances given by specific architectural qualities of the spaces that form the integration cores of the buildings. Each of these analyses will be explained separately in the next sections 6.1 and 6.2. In each section, all five buildings are firstly analysed, and then findings are summarised. In the end, this chapter summarises how different are the Library-Parks in relation to their arrangements of spaces and programmes; further it discusses how each of these arrangements imply affordances to different 'virtual communities' (section 6.3). However, a full discussion on these findings in relation to the main questions of this research will happen only in chapter 8, which will take into account the findings of this chapter together with the results from the next one (chapter 7).

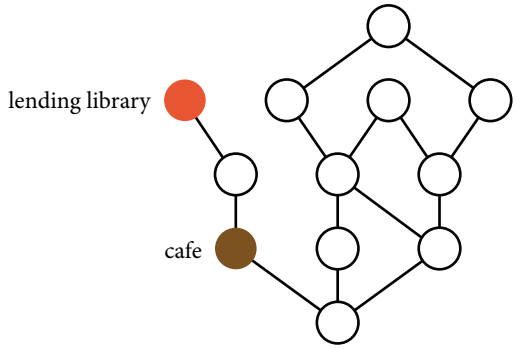


Figure 6.03: A diagrammatic example of a lending library that is accessed only by crossing the space of the cafe.

6.1. Topological functioning of programmes

The first analysis refers to understanding the functioning of each programme in each building according to their topological generic types [a], [b], [c] and [d] (Hillier 1996), since these types indicate the potential spatial performance of each programme. For instance, this analysis may expose whether a particular programme performs as 'to movement' ([a]-type) or 'through movement' ([d]-type); or if this programme may be accessible by only one possible sequence of spaces (lying on a sequence of [b]-type spaces), or by many different sequences [d]-type (Figure 6.02). These differences (and others that will be discussed further in the analysis) provide a first indication of how spatial structure shapes programmatic functioning. This was studied through the comparison of the justified graphs of the convex systems of the five libraries (Figures 6.04 to 6.24). These graphs are coloured firstly according to the programme of each space (e.g. Figure 6.05), and secondly according to their topological type as [a], [b], [c], and [d] spaces (e.g. Figure 6.06). A third graph is coloured in order to expose the topological types of only those spaces that are programmed (i.e. excluding corridors, passages and stairs) (e.g. Figure 6.08).

This first analysis also addresses how configurationally deep or shallow each programme is in relation to the entrance – and what other programmes lie in the way between entering the building and going to a specific programmed activity. These problems are addressed using the same justified graphs in order to capture each programme's topological depth and the shortest paths to reach them. This analysis exposes how different programmes generate different paths in the buildings, and

how these paths may be considered as a spatial element of each programme. For instance, if in a building, in order to reach the lending library one must cross the space of the cafe, then the functioning of lending library is spatially linked to that of the cafe in this building (Figure 6.03). These links may inform how programmes are grouped in space and whether they coincide or not with their transpatial definition (as I discussed in regards to Figure 6.01). Each building will be analysed separately and then a summary of the key aspects of each one will be drawn at the end of this section (Table 6.25).

Parque-Biblioteca San Javier

The justified graph of PB San Javier shows that it consists mainly of [c], [d] and [a] types of spaces (Figure 6.06 and Table 6.25 Row 2), in other words, the layout produces various rings of circulation that connect to dead-end rooms ([a]-types). In fact, one could describe the layout of this building as rings of spaces (space types [c] and [d]) connected by a central sequence of spaces (Figure 6.04 and 6.05, sequence of spaces: 2, 9, 11, 12, 15, 16, 17 and 18). I will call this central sequence the 'main spine', since it structures the movement through the building. The two rings of spaces that are shallowest in relation to the entrance house the cafe, exhibition room and auditorium (Figure 6.05, spaces 39, 40 and 5 respectively). These programmed spaces have no connection to the other 'deeper rings' other than through the 'main spine' (Figure 6.05, space 2). In fact, the 'main spine' works as the only connection between groups of rings of spaces (Figure 6.05, blue lines expose the separation between four main groups of spaces). This characteristic makes the spaces of the 'main spine' work as [d] or [c] types (Figure 6.06) in relation to each ring of spaces that they participate in, but when considering their role in relation to the movement to enter and exit the building, they actually work as [b]-type of spaces. In other words, the spaces of the 'main spine' locally work as through movement, allowing various choices of connections in the building ([d]-type), but they globally work as a sequence (Table 6.25 Row 5). It should be noted, however, that this is caused by the fact that many of the possible entrances to the building are closed by the administration of the library: if these entrances were opened, the graph of the library would be the one represented in Figure 6.07. In this hypothetical scenario – interestingly, the one that the architects

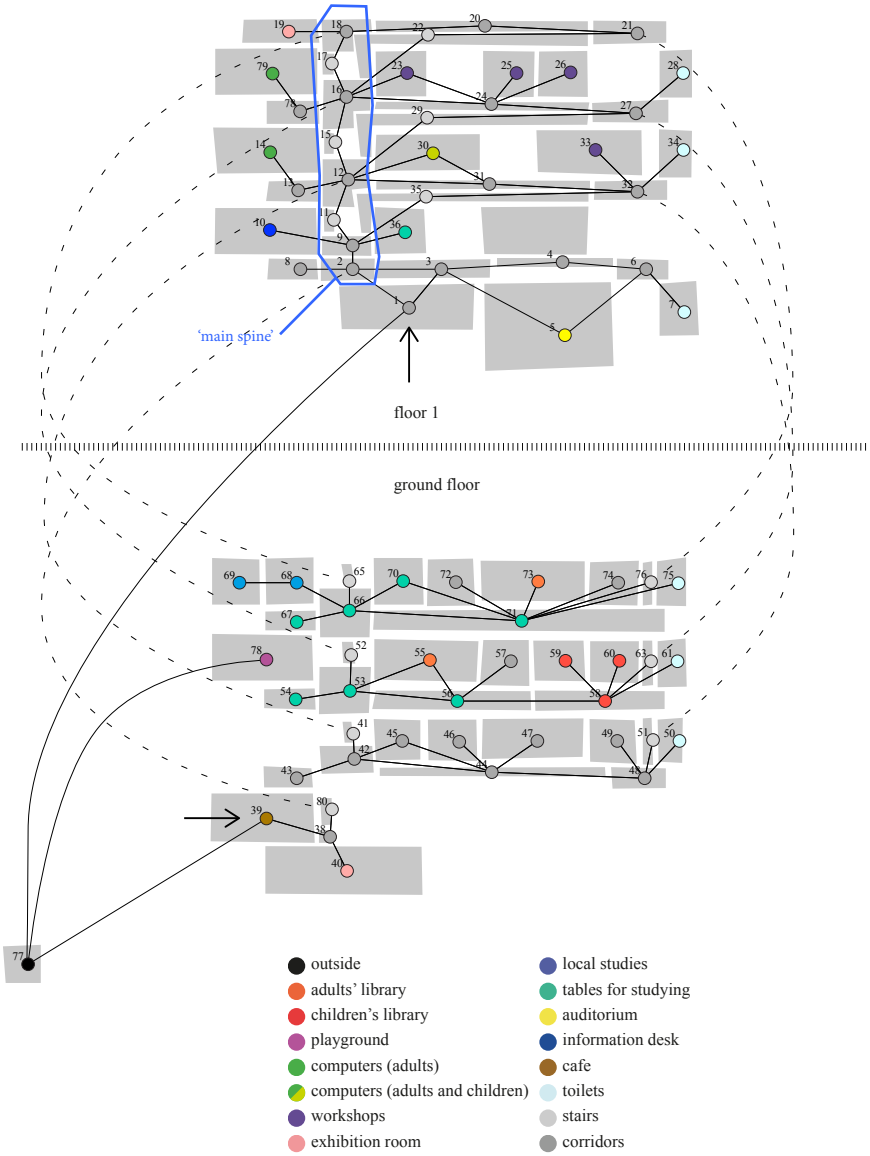


Figure 6.04: PB San Javier as a system of convex spaces (with indication of programmes). Arrows indicate entrances of the building.

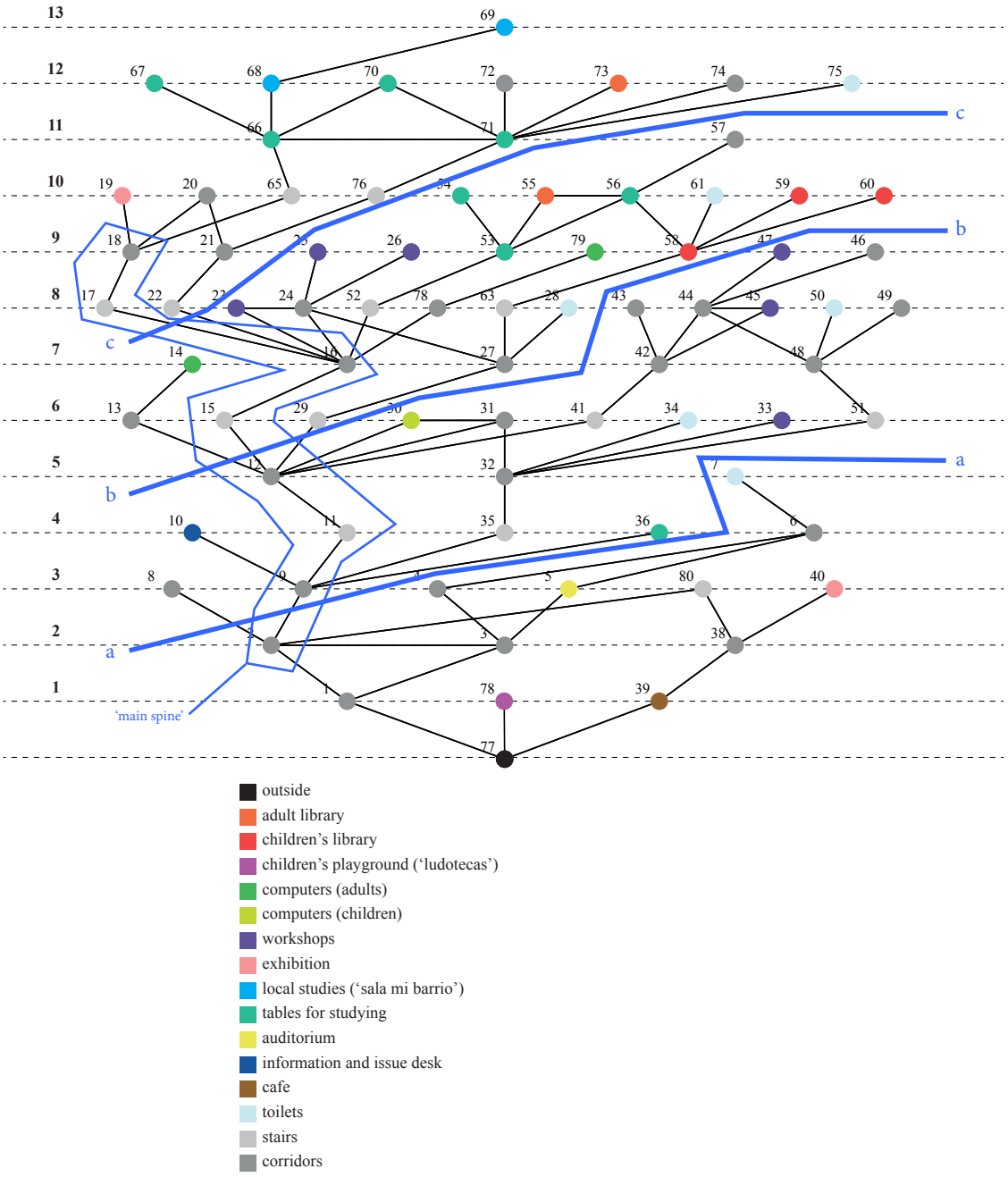


Figure 6.05: Justified graph of PB San Javier's convex spatial structure. Colours represent different programmes (see legend). The graph starts from the outside space (space 77). The blue lines (a), (b) and (c) mark groups of spaces which are connected only through the 'main spine' (the sequence of spaces 2, 9, 11, 12, 15, 16, 17 and 18).

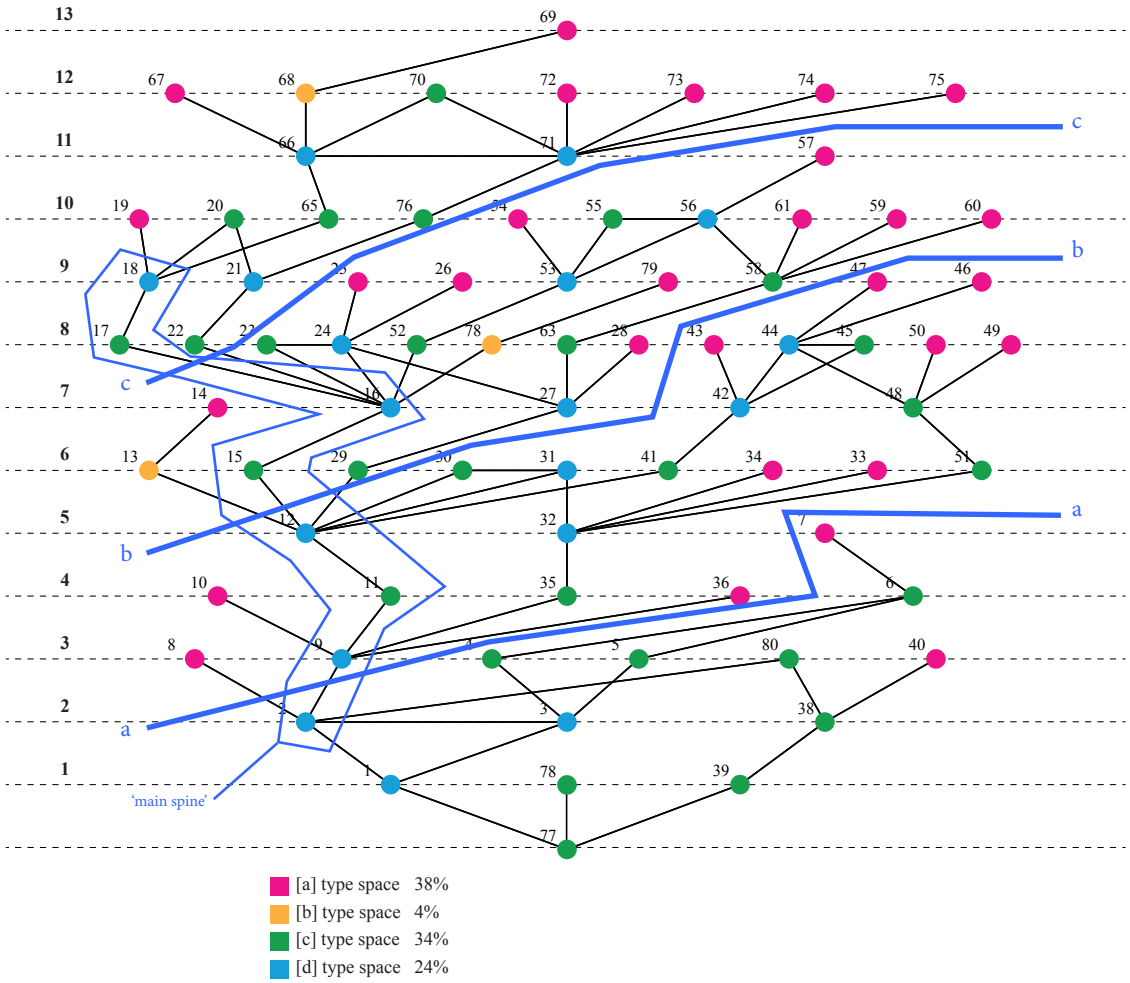


Figure 6.06: Justified graph of PB San Javier's convex spatial structure. Colours represent topological types [a], [b], [c] and [d]. The graph starts from the outside space (space 77). The blue lines (a), (b) and (c) mark groups of spaces which are connected only through the 'main spine' (the sequence of spaces 2, 9, 11, 12, 15, 16, 17 and 18).

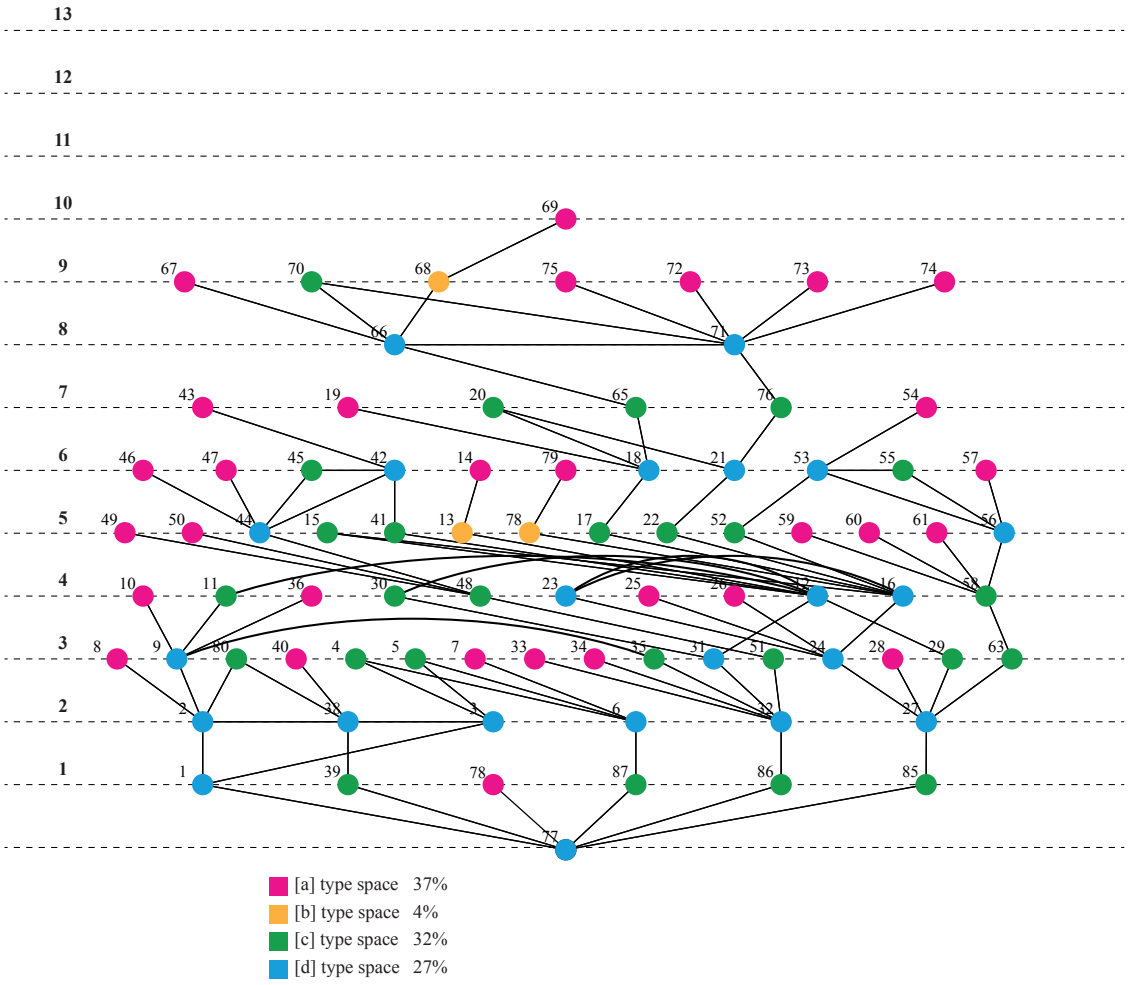


Figure 6.07: Justified graph of PB San Javier's convex spatial structure considering all architectural connections that could be used, but are closed by the organisational control of the building. Colours represent topological types [a], [b], [c] and [d]. The graph starts from the outside space (space 77).

intended as the functioning of this building – the building's structure of convex spaces would be 3 steps shallower in relation to the outside space in comparison with the 'real situation', and there would be no 'main spine'.

Another aspect concerns the topological types of programmed spaces only (Figure 6.08). Most of the programmed spaces of PB San Javier are [a]-types (63%). In other words, these programmes function as destinations only and visitors who do not go to a particular programme are not likely to enter its space. In this graph (Figure 6.08), all [d]-type are spaces with tables for studying. Some of these spaces provide the only way to access other programmes. For instance, the spaces for local studies (spaces 68 and 69) can only be accessed through space 66. The same happens with adult library (space 55) and its connections. This fact diminishes the boundaries

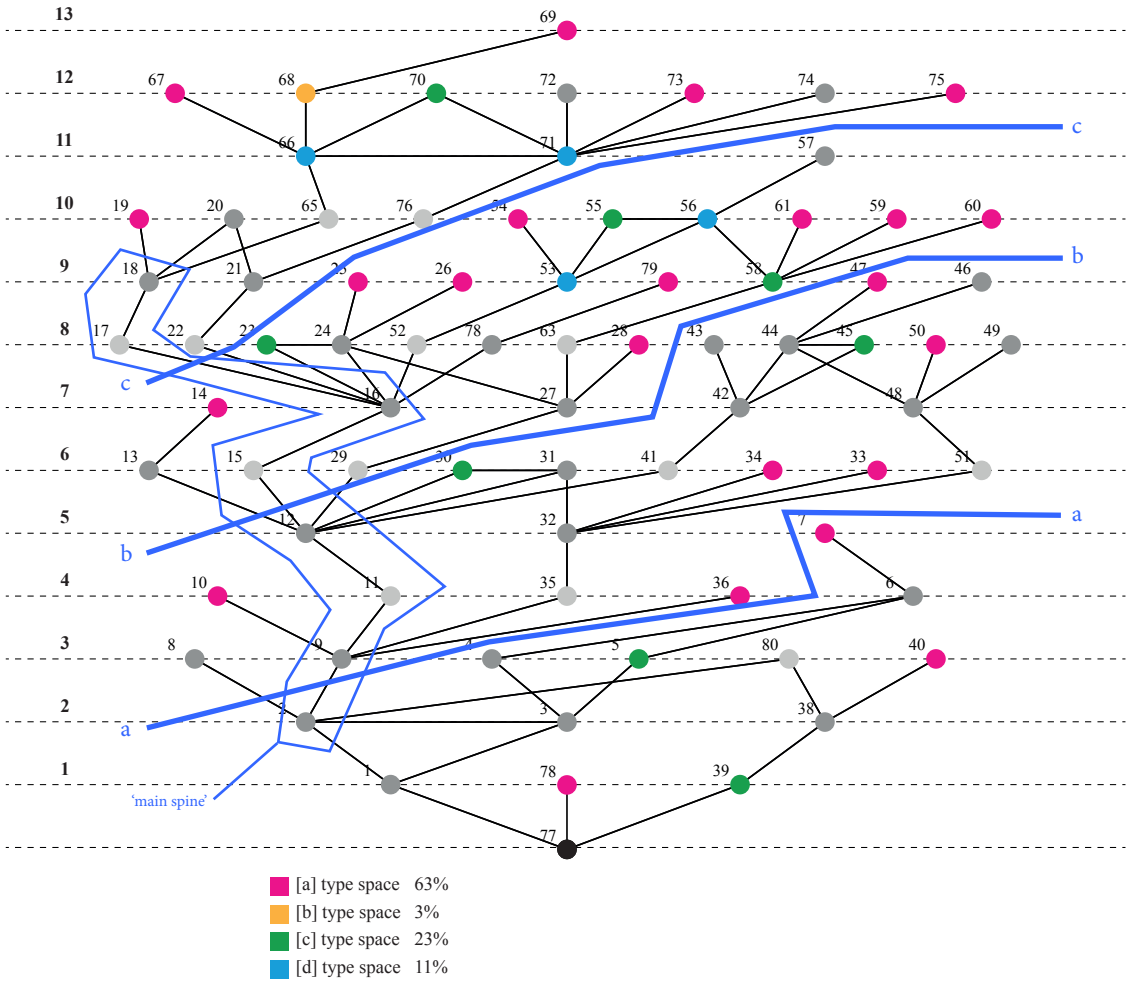


Figure 6.08: Justified graph of PB San Javier's convex spatial structure. Colours represent topological types [a], [b], [c] and [d] of programmed spaces only. The graph starts from the outside space (space 77). The blue lines (a), (b) and (c) mark groups of spaces which are connected only through the 'main spine' (the sequence of spaces 2, 9, 11, 12, 15, 16, 17 and 18).

between programmed activities, since users who are not going *to* the study room are likely to cross its spaces. However, since the pairing of a space with tables for studying and a space with bookshelves is as old as the first public libraries, this through-movement condition might not generate forms of occupation and interaction other than those that happen in a traditional library. Nevertheless, the adult collection is spread according to subjects in different spaces of the building (Figures 6.04 and 6.05, spaces 55 and 73) – a fact that imply movement through many spaces for the visitors who search for specific materials. This movement, however, is likely to happen in corridors and stairs only, not crossing other programmed spaces.

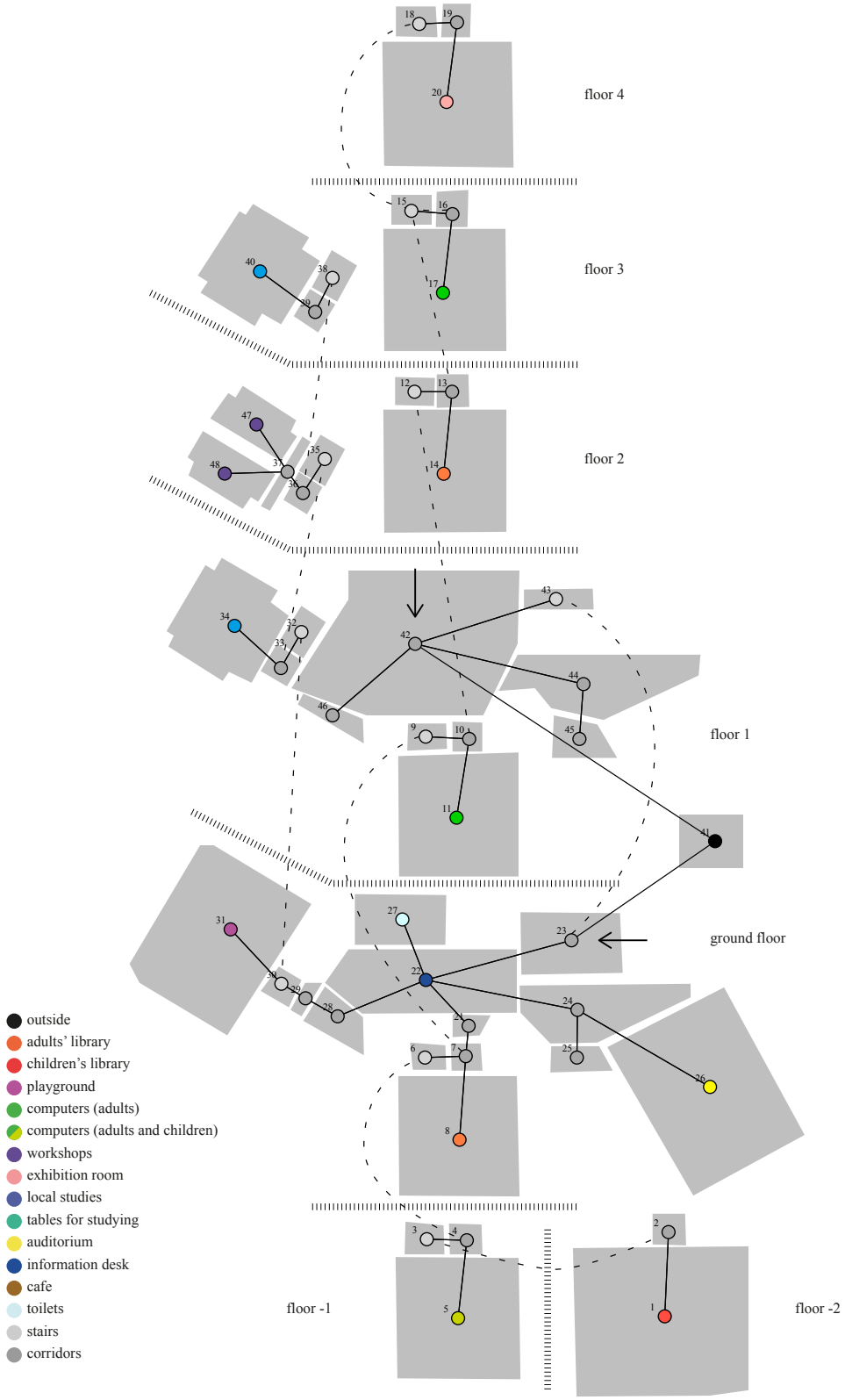


Figure 6.09: PB España as a system of convex spaces (with indication of programmes). Arrows indicate entrances of the building.

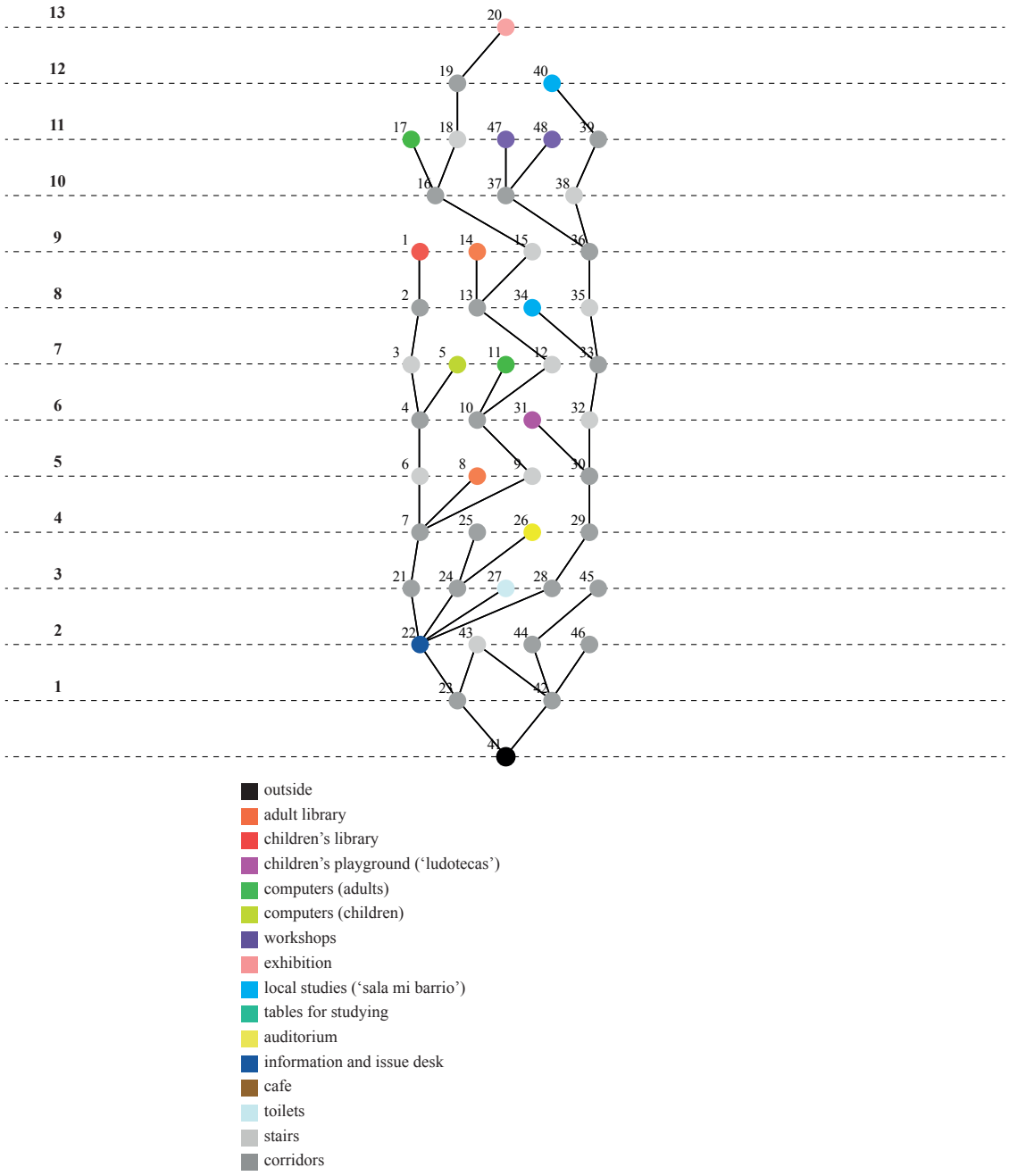


Figure 6.10: Justified graph of PB España's convex spatial structure. Colours represent different programmes (see legend). The graph starts from the outside space (space 41).

Parque-Biblioteca España

The justified graph of the PB España shows that, apart from the four spaces that form the entrance of the building (which are [c]-type spaces), it consists of [a] and [b] types of spaces only (Figure 6.11, Table 6.25 Row 2), i.e. the graph resembles a tree. Looking at the programmatic labels of these spaces (Figure 6.08), one sees that there is a clear division of the building into two separate 'branches' in terms of content, influencing the purpose and character of the visit (see, in figure 6.08,

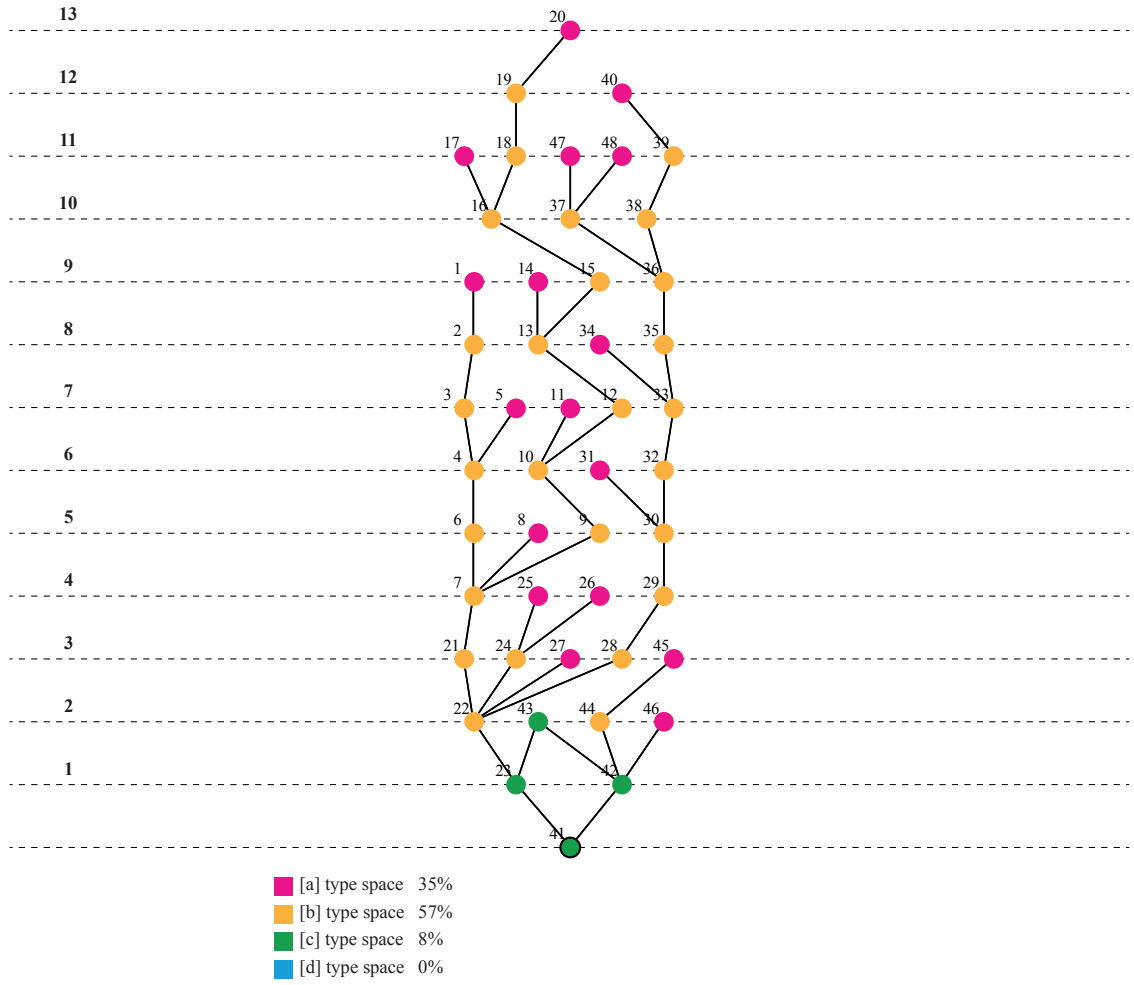


Figure 6.11: Justified graph of PB España's convex spatial structure. Colours represent topological types [a], [b], [c] and [d]. The graph starts from the outside space (space 41).

the sequence of spaces that start from space 22, particularly the two sequences that continue from spaces 21 and 28). Each of these branches in fact coincides with this building's outside overall division into 'towers' (Figure 5.06c, in chapter 5).

The branch that starts with space 21 houses the adult library (Figure 6.10, spaces 8 and 14), computer rooms (spaces 5, 11 and 17), exhibition room (space 20) and the children's library (space 1). In short, the first branch concentrates programmes that provide physical and virtual access to information, corresponding to the Library-Parks' purpose of functioning as a 'formal learning facility' (see introduction of this chapter). On the other hand, the branch that starts with space 28 accommodates the children's playground (space 31), workshops (spaces 47 and 48) and a section housing material on 'local studies' (spaces 34 and 40). In other words, this second branch houses programmes that aim at producing knowledge through programmed interactions (in particular in the workshops), corresponding with the Library-Parks' purpose of functioning as an 'interactive learning facility' (see introduction of this

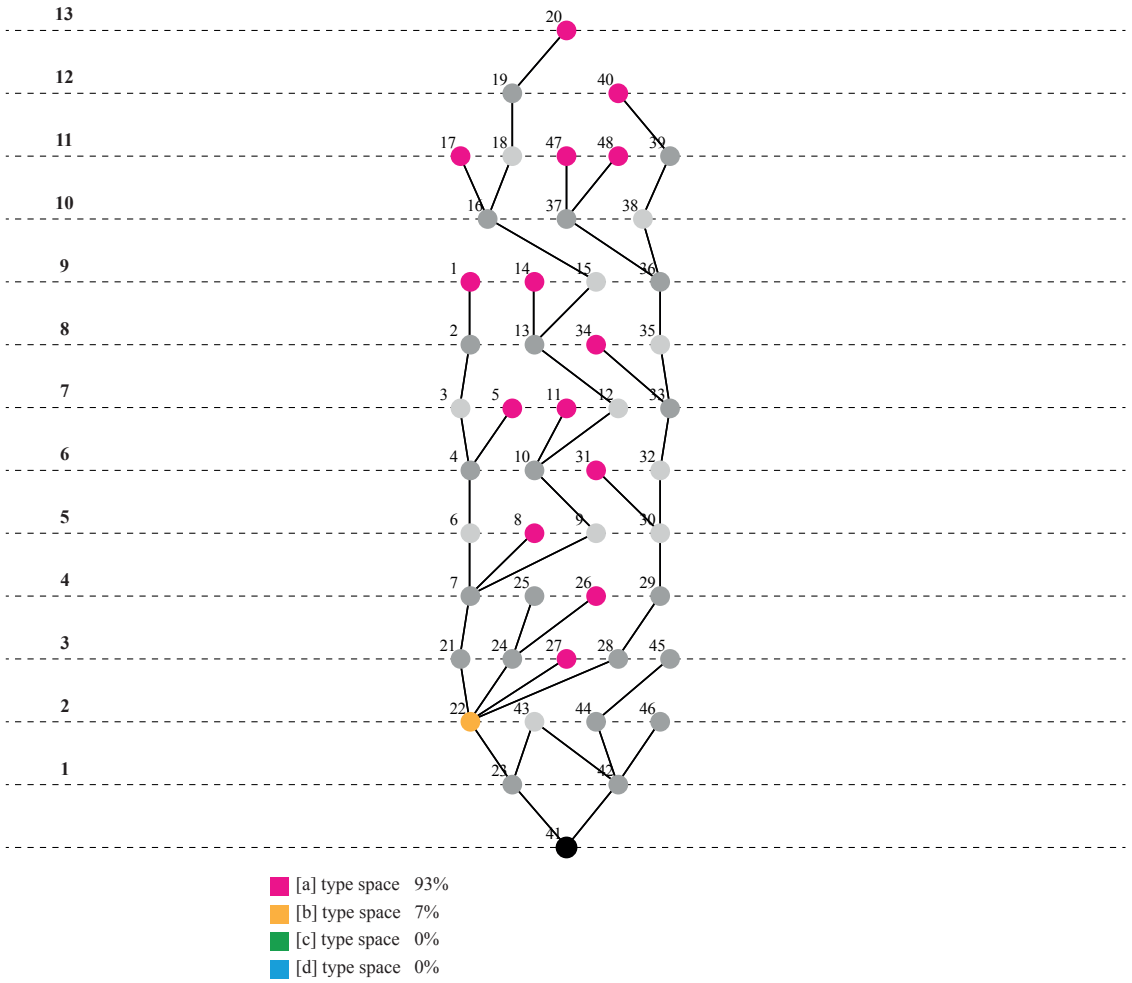


Figure 6.12: Justified graph of PB España's convex spatial structure. Colours represent topological types [a], [b], [c] and [d] of programmed spaces only. The graph starts from the outside space (space 41).

chapter). To access any of these programmatic 'branch sections', the user necessarily has to pass through the space for information desk (space 22)[1] (Figure 6.10). In fact, despite this hall space for information desk, all programmed activities are dead-end spaces ([a]-type spaces) (Figure 6.12), which means that these rooms function as destinations only. In other words, visitors who do not go to a particular programme are not likely to enter its space. Therefore, the only spaces left for unprogrammed interactions to happen between different user groups are the transition spaces of stairs and corridors. However, due to the division into 'towers', there are various stairs that break the continuity of these transition spaces in different floors. This fact makes any concentration of unprogrammed interactions very unlikely to happen. In fact, this 'tower-like' condition is perhaps the explanation for this building's very deep[2] structure (up to 13 steps from the entrance, Figure 6.10).

1 In PB España, issue desks are placed in each lending library.

2 (compared to the other libraries)

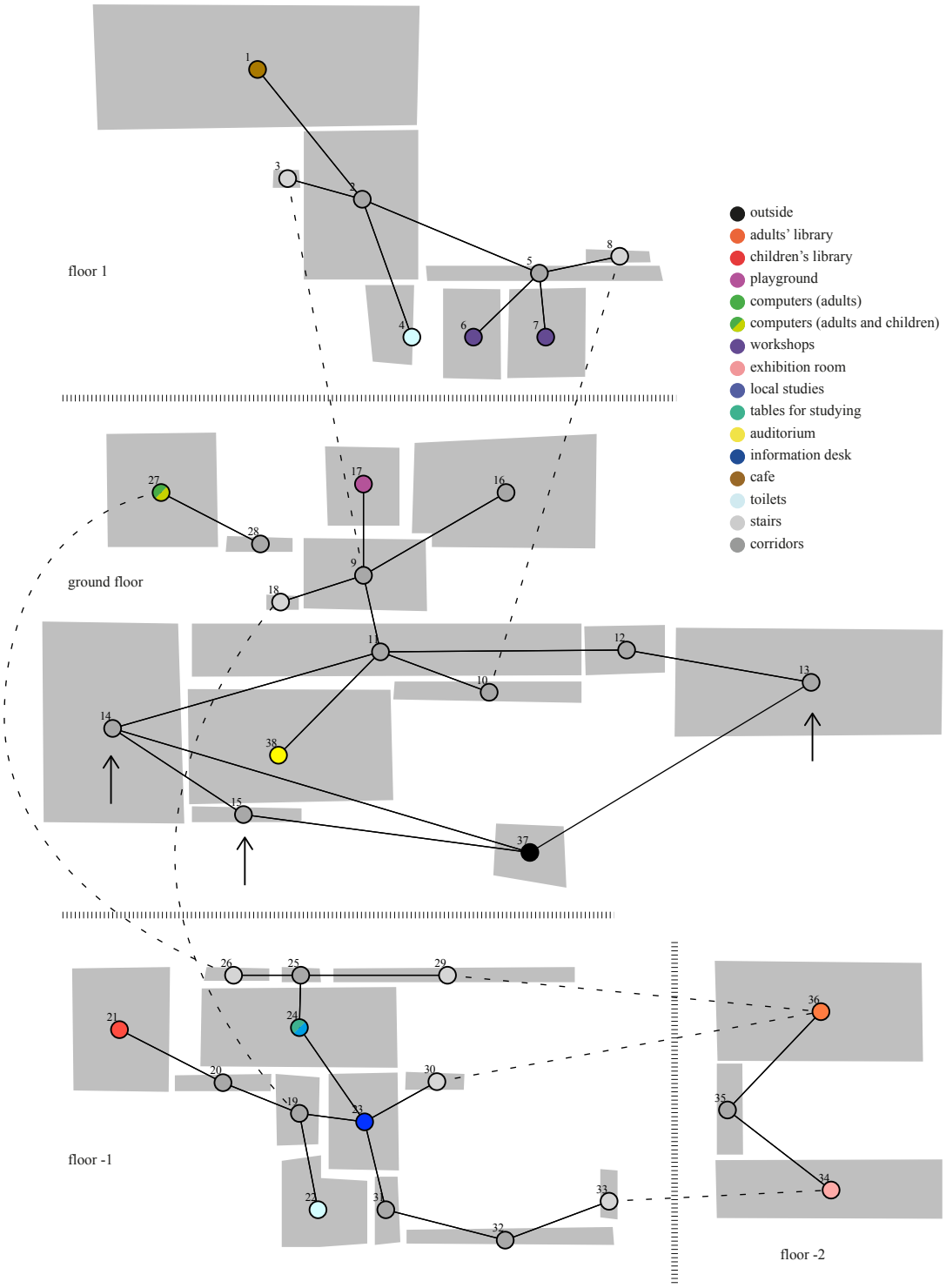


Figure 6.13: PB La Quintana as a system of convex spaces (with indication of programmes). Arrows indicate entrances of the building.

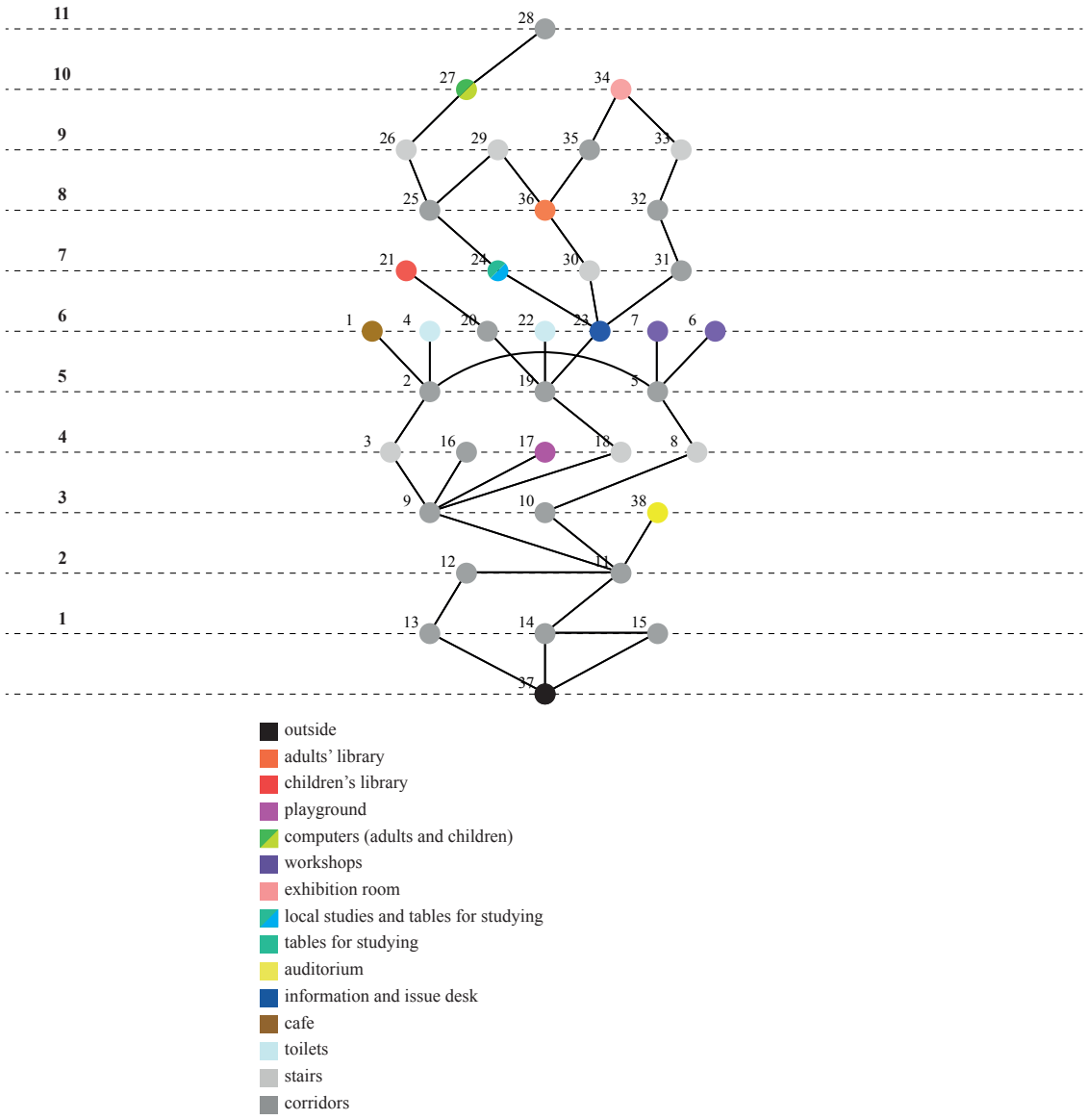


Figure 6.14: Justified graph of PB La Quintana's convex spatial structure. Colours represent different programmes (see legend). The graph starts from the outside space (space 37).

Parque-Biblioteca La Quintana

The justified graph of the PB La Quintana shows that it consists of an intricate combination of rings of circulation ([c] and [d] types) and accesses to dead-end spaces ([a] type) (Figure 6.15). In order to understand this intricate combination, one may separate the building into two main sections: a shallower one where the café (space 1), children's playground (space 17), workshops (spaces 6 and 7) and auditorium (space 38) are connected (Figure 6.14); and a deeper one, starting from space 19, where children and adult libraries (spaces 21 and 36), computer room (space 27), exhibition room (space 34) and a section for material on local studies (space 23) are

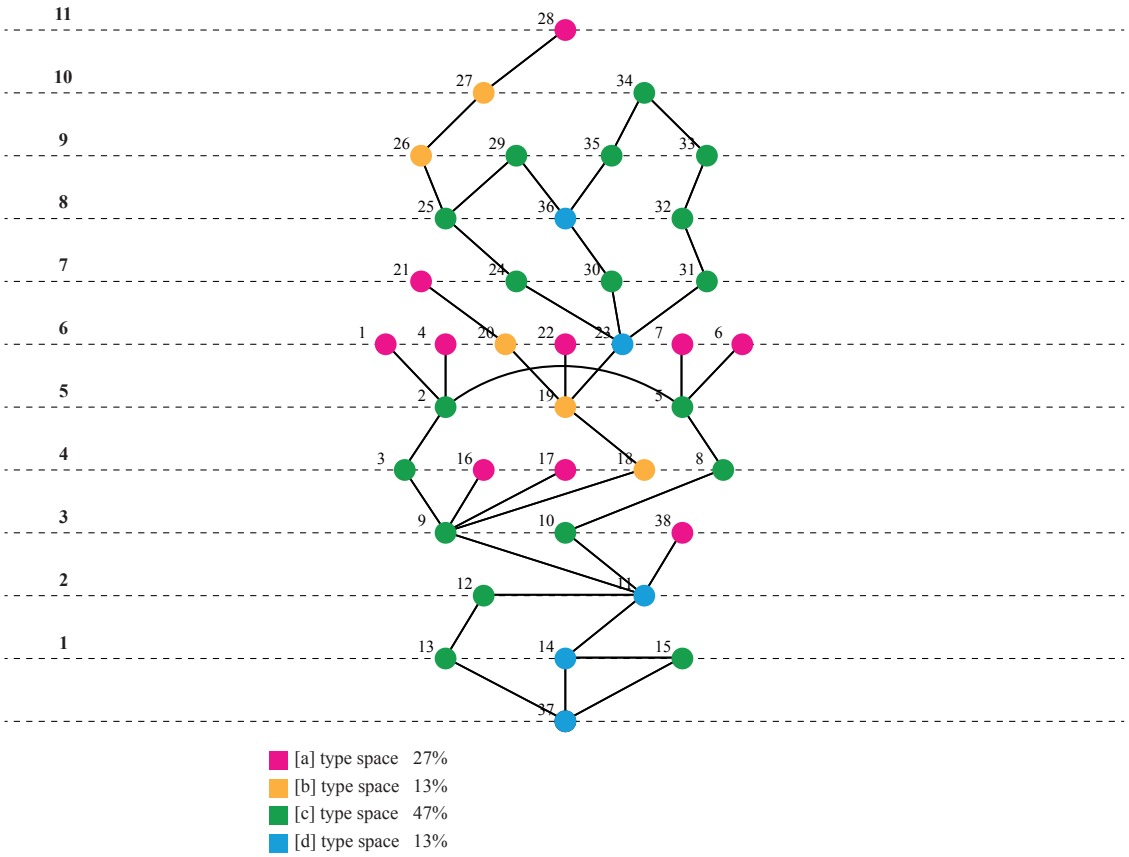


Figure 6.15: Justified graph of PB La Quintana's convex spatial structure. Colours represent topological types [a], [b], [c] and [d]. The graph starts from the outside space (space 37).

located. In the first section, programmed spaces are [a]-types only (Figure 6.16), and it is noteworthy the large amount of unprogrammed convex spaces. In the second section, none of the programmed spaces are [a]-types (Figure 6.16). In fact, despite the computer room (space 27), which is a [b]-type space[3], all other programmed spaces of this section are part of one or more rings of spaces. This fact implies that the boundaries in between these programmes are blurred, since people are likely to cross different programmes in the way between other programmes. I do not intend to say that the spatial (physical) boundaries are 'blurred', but that the (potential) movement of visitors might mix activities from different programmes. In particular, the space dedicated to material on local studies (space 23) becomes a real 'centre of through-movement', since this space is also the entrance to this section, making it an essential part of the path to all the other programmes. This section is occupied with

3 It is noteworthy that space 28 has a door to space 9 that remains always closed by the institutional administration of the building. This fact would significantly change the configuration of the building, making the computer room become a [c] type space, for example.

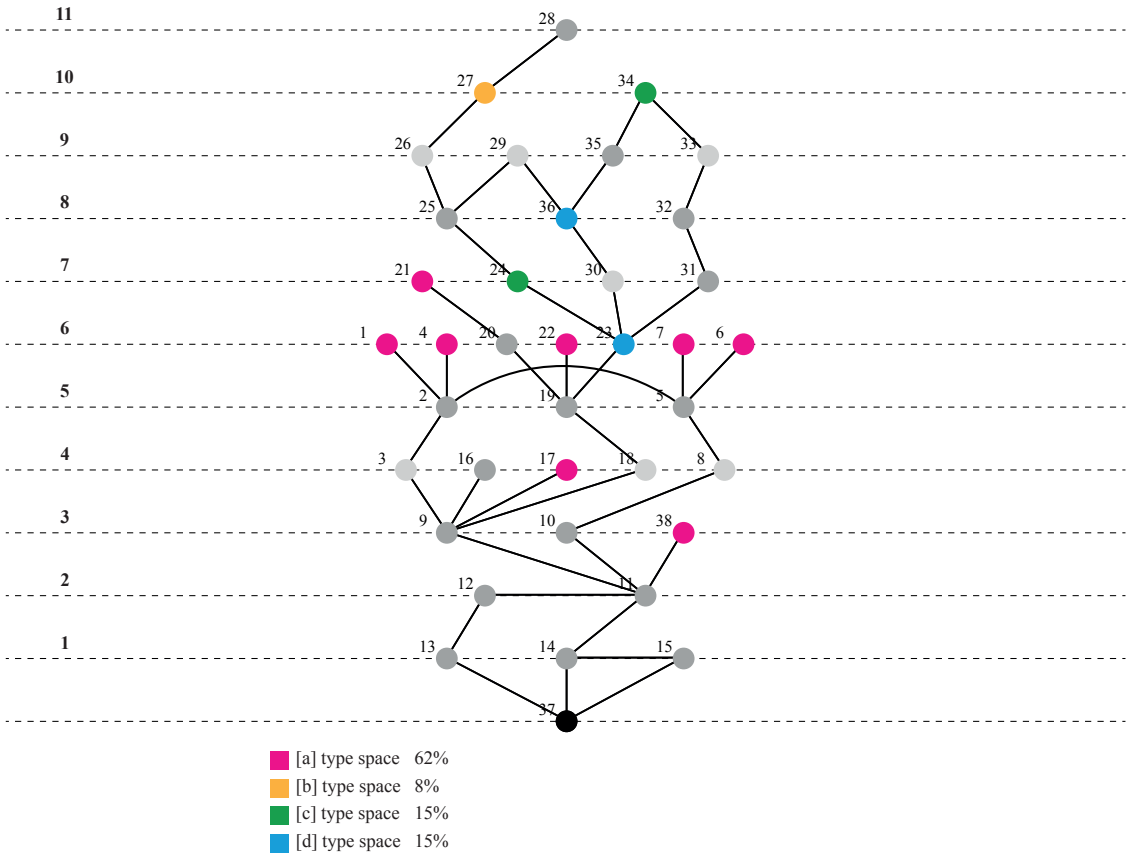


Figure 6.16: Justified graph of PB La Quintana's convex spatial structure. Colours represent topological types [a], [b], [c] and [d] of programmed spaces only. The graph starts from the outside space (space 37).

programmes that provide physical and virtual access to information. On the other hand, the other section (that is, the shallower rings of spaces) houses programmes that aim at producing knowledge through programmed interactions (in particular in the workshops). In other words, similar to PB España, one can see a spatial division that corresponds to the Library-Parks' purposes of functioning as 'formal learning facilities' and 'interactive learning facilities' that were mentioned above in the introduction of this chapter.

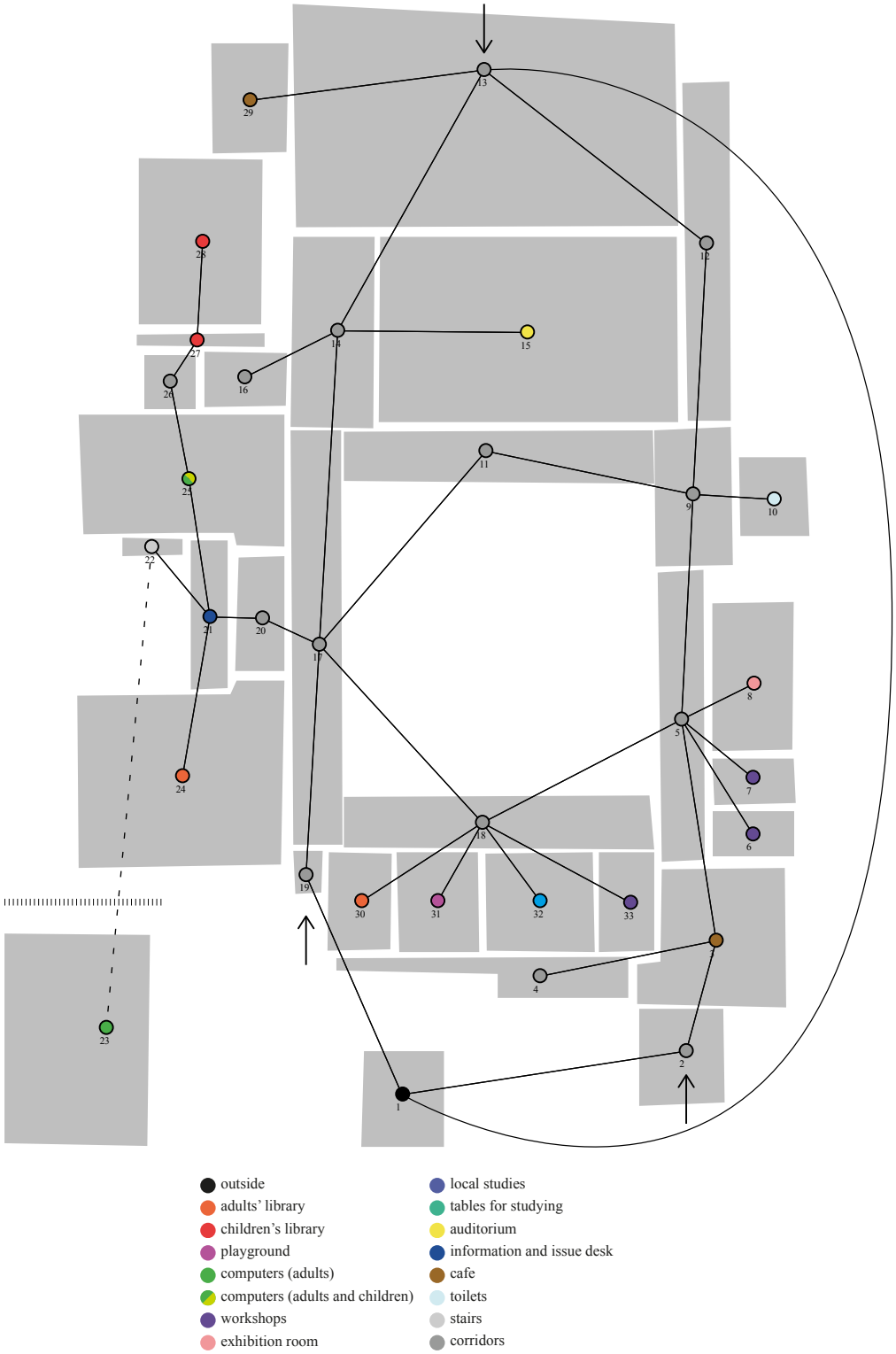


Figure 6.17: PB Belén as a system of convex spaces (with indication of programmes). Arrows indicate entrances of the building.

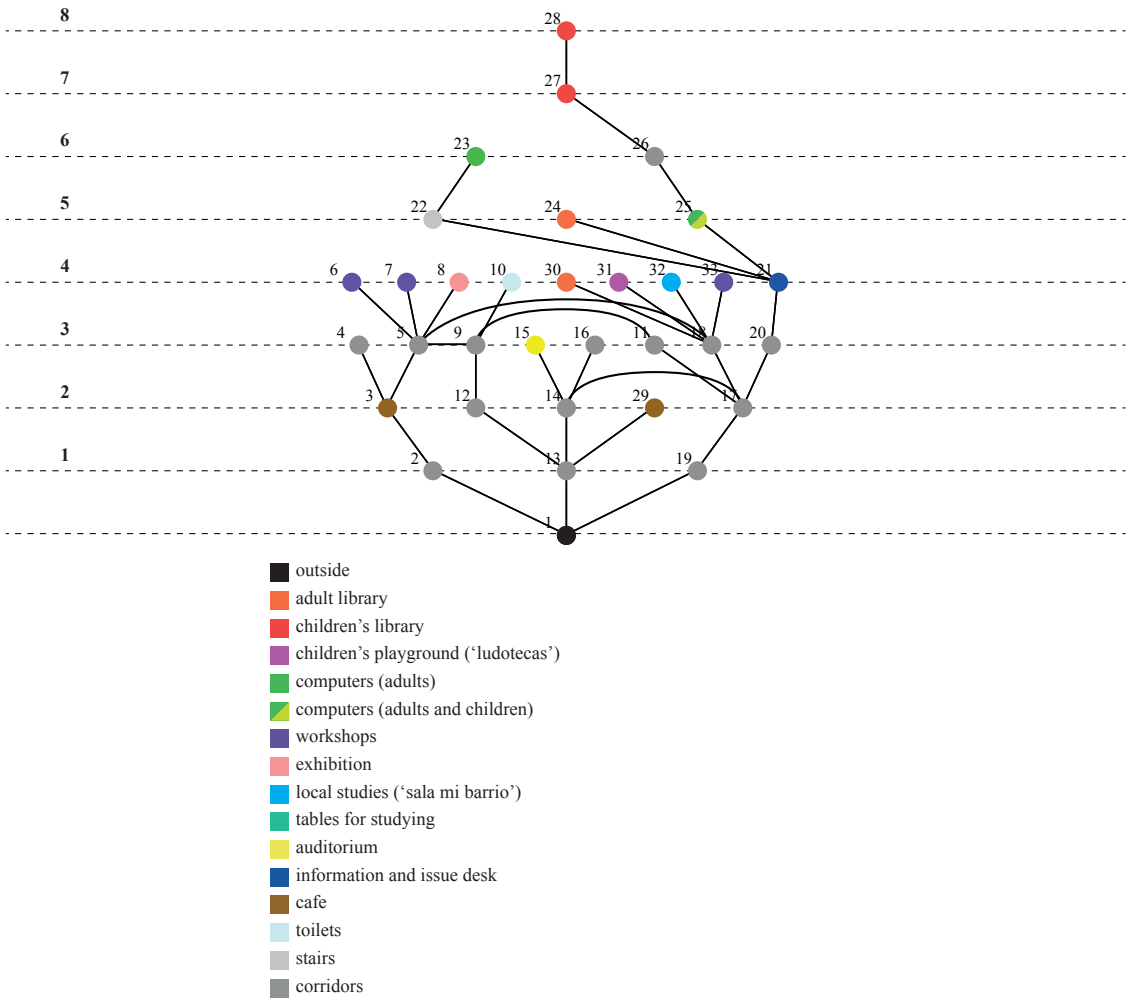


Figure 6.18: Justified graph of PB Belén's convex spatial structure. Colours represent different programmes (see legend). The graph starts from the outside space (space 1).

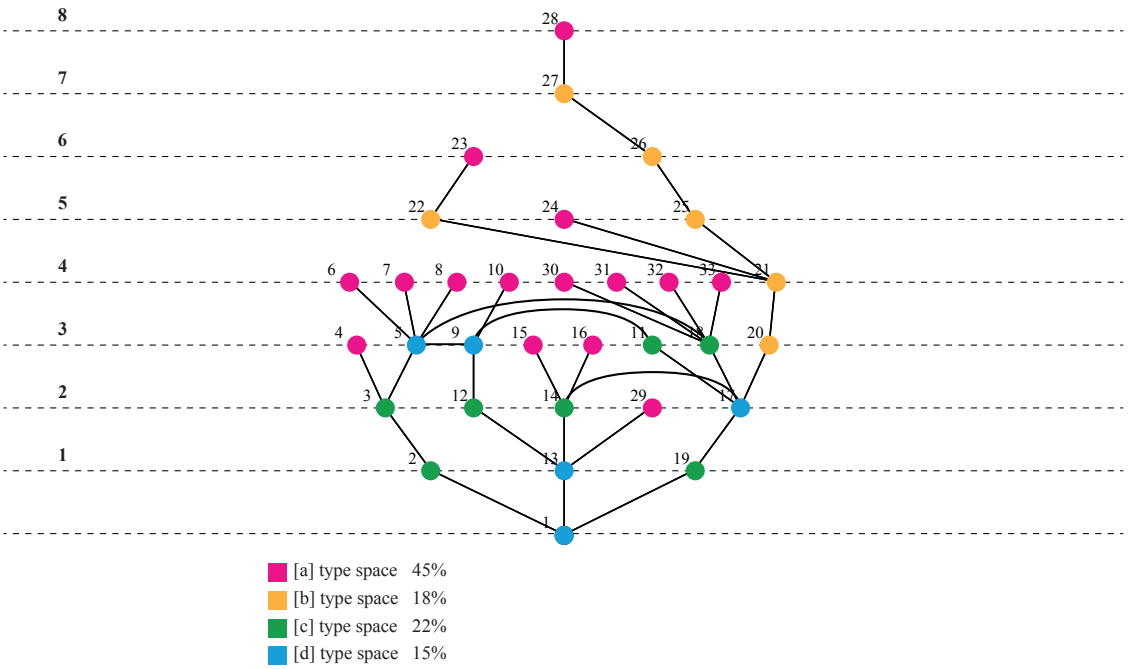


Figure 6.19: Justified graph of PB Belén's convex spatial structure. Colours represent topological types [a], [b], [c] and [d]. The graph starts from the outside space (space 1).

Parque-Biblioteca Belén

The justified graph of the PB Belén shows that it consists of a shallow system (in relation to the other Library-Parks), as it's deepest space is found at 8 steps from the entrance (Figure 6.18). The structure can be described as a series of corridors that form rings of spaces ([c] and [d] types) (Figure 6.19) that link to programmed [a]-type and [b]-type spaces (Figure 6.20)[4]. These programmed spaces are mostly on the same topological distance to the entrance (4 steps) and even though they don't allow through movement, the fact that many different programmes link to a circulation system made of a few spaces might generate a very diverse overlaying of paths in the building. In a sense, one could say that the building spatial structure does not structure programmed activities into predefined sequences. The only exception is the group of spaces that branch from space 21 (Figure 6.20). This section concentrates programmes that provide physical and virtual access to information (adult and children libraries[5] and the computer rooms). In fact, considering the point of view from the circulation system (spaces 5, 9, 11, 18, and 17) with its many accesses to various programmes, one could understand this entire section as just another

4 The only exception is one of the cafes (space 3), which is a [c] type space.

5 Both adult and children libraries have tables for study in their spaces.

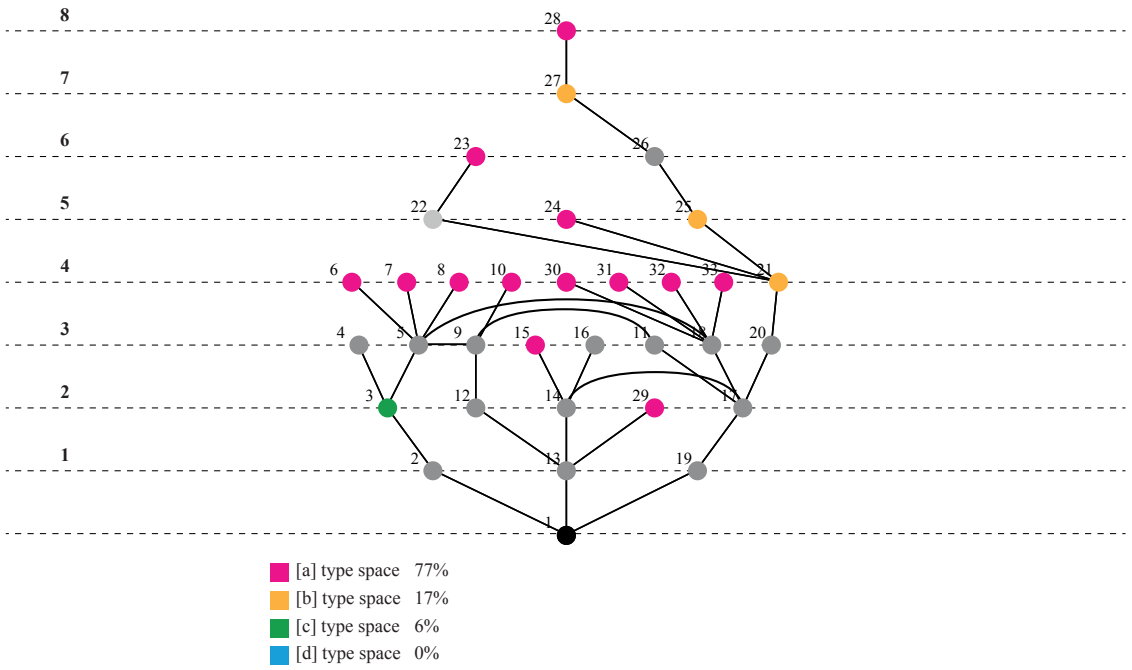


Figure 6.20: Justified graph of PB Belén's convex spatial structure. Colours represent topological types [a], [b], [c] and [d] of programmed spaces only. The graph starts from the outside space (space 1).

programmed space (similar to spaces 6, 7, 8, 30, 31, 32 and 33), also 4 steps distant from the entrance (Figure 6.20). This fact makes the whole circulation system looks very diverse in terms of its potential to generate an overlay of different user groups.

Parque-Biblioteca Fernando Botero

The justified graph of the PB Fernando Botero (Figure 6.22) shows that it consists of the shallowest system in relation to the other Library-Parks (7 steps from the entrance). Its convex system can be simplified into two separate sections: a first one that branches from space 1; and a second one that starts at space 16. The first section houses programmes that aim at producing knowledge through programmed interactions (in particular in the workshops) – corresponding with the Library-Parks' purpose of functioning as an 'interactive learning facility'. The second section accommodates the adult and children libraries (Figure 6.22, spaces 23 and 19) and computer rooms (spaces 20, 25, 26, 29 and 30). In other words, this section mixes programmes that provide physical and virtual access to information – corresponding with the Library-Parks' purpose of functioning as a 'formal learning facility' – with those that correspond with the purpose of functioning as an 'interactive learning facility'.

These two sections are linked by a group of spaces that works as the entrance hall to this Library-Park. From this entrance hall, one may access the exhibition room (space 15) and auditorium (space 14) (Figure 6.22). The majority of programmed spaces functions as to-movement ([a]-types) (Figure 6.24). The exceptions are the cafe (space 1, [c]-type), the areas of information and issue desks (spaces 17, [b]-type and 22, [c]-type) and children's library and children's computer room (spaces 19 and 20, both [c]-type). Besides the link between children's library and computer room, these rings of circulation in programmed spaces are trivial, covering the same programmatic areas. In other words, the spatial structure of the whole building forms a strong functional sequence, since visitors who do not go to a specific programme are not likely to cross its spaces and circulation accesses.

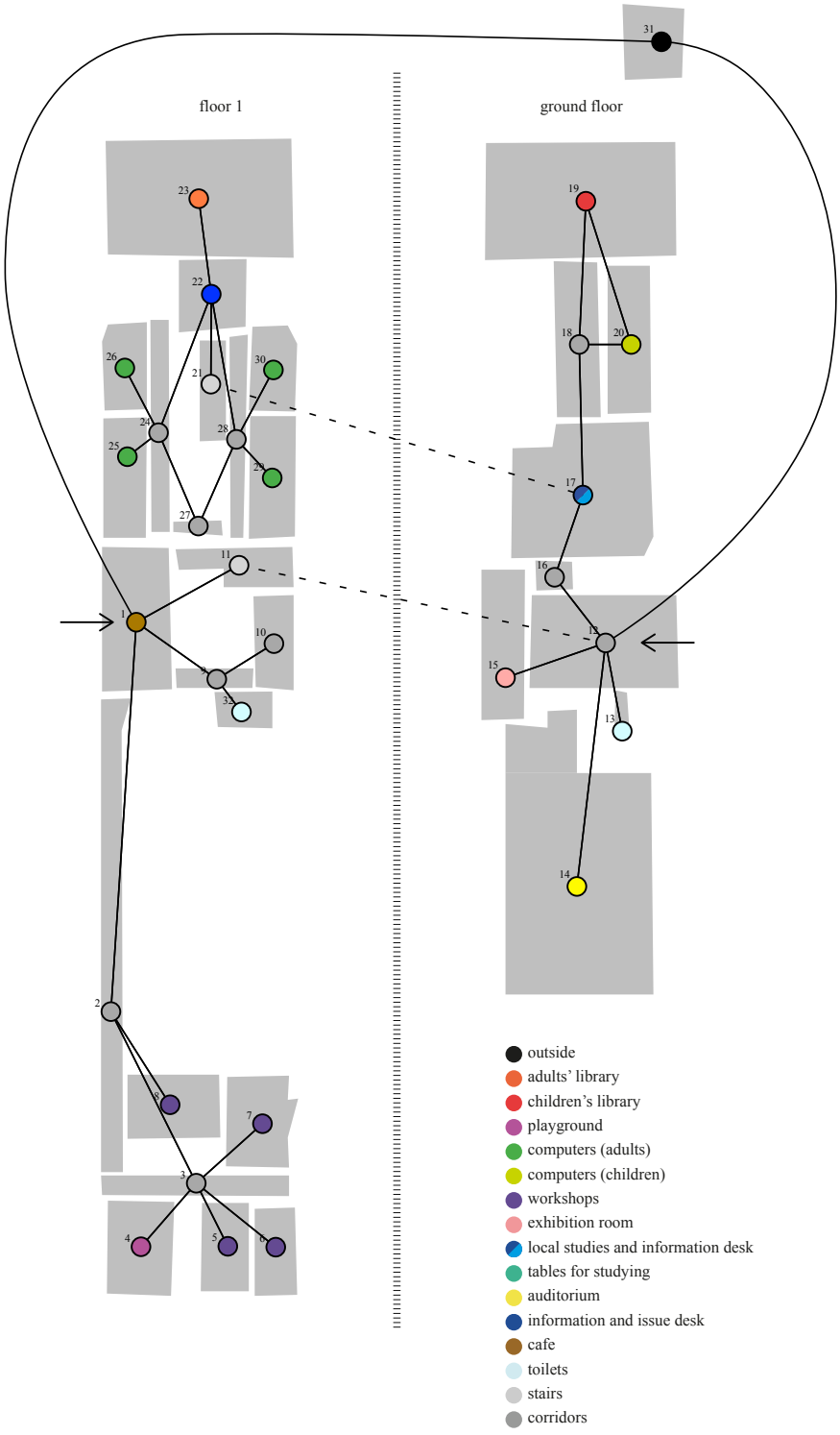


Figure 6.21: PB Fernando Botero as a system of convex spaces (with indication of programmes). Arrows indicate entrances of the building.

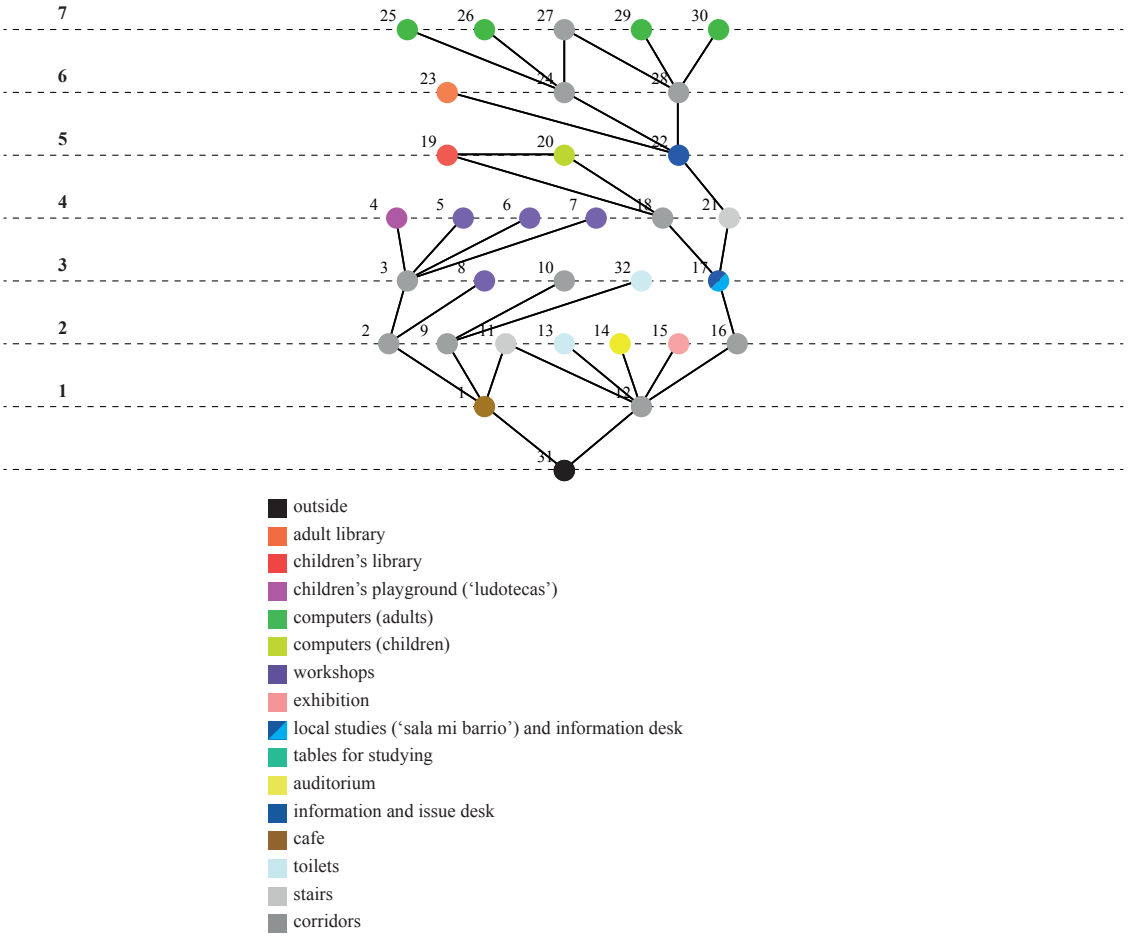


Figure 6.22: Justified graph of PB Fernando Botero's convex spatial structure. Colours represent different programmes (see legend). The graph starts from the outside space (space 31).

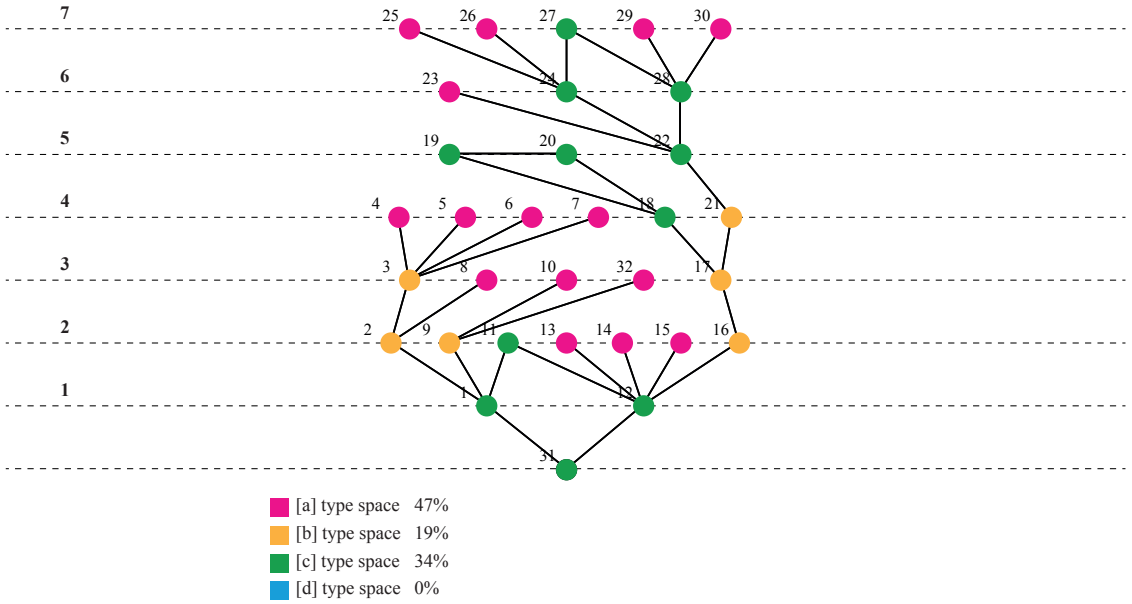


Figure 6.23: Justified graph of PB Fernando Botero's convex spatial structure. Colours represent topological types [a], [b], [c] and [d]. The graph starts from the outside space (space 31).

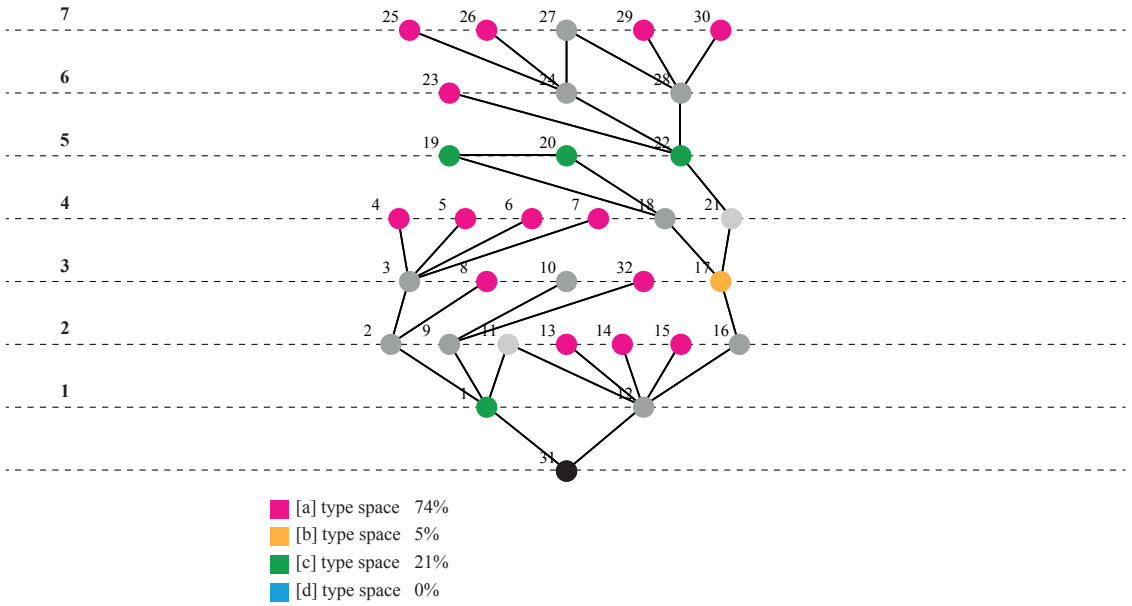


Figure 6.24: Justified graph of PB Fernando Botero's convex spatial structure. Colours represent topological types [a], [b], [c] and [d] of programmed spaces only. The graph starts from the outside space (space 31).

Topological Functioning of Programmes – Comparisons between the buildings

When looking at these analyses in comparison to each other, one could see three main groups of differences in the topological functioning of the Library-Parks (Table 6.25). The first difference refers to the distribution of programmes in the layout, and particularly whether programmes function as to-movement or through-movement (Table 6.25, rows R1, R2 and R3). The second main difference observed refers to the overall topological functioning of the buildings, particularly how the access to different groups of programmes is structured (rows R4 and R5). The third main difference refers to the topological functioning of the outside space, an aspect that was not mentioned in the previous descriptions of each building, but that becomes relevant when the buildings are compared to each other (rows R6 and R7).

The rates of [a] type spaces among programmed spaces vary from around two thirds (PB San Javier and PB La Quintana); three fourths (PB Belén and PB Fernando Botero); and almost totality (PB España). In other words, most of programmed convex spaces are [a]-types (Table 6.25, row R2). This might indicate that, in general, the Library-Parks treat different programmed activities as separate destinations. There are clear spatial boundaries between each programme, partitioning the buildings into collections of secluded activities[6]. PB San Javier has significant rates of programmed spaces being [c] and [d] types. These, however, refer to rings of circulation covering the same types of activities (e.g. tables for studying adjacent to adult library). Therefore, in this Library-Park, one cannot see how the arrangement of programmes in the spatial structure can generate interactions different than those that of traditional libraries. A similar situation applies to PB Fernando Botero. Different from these two Library-Parks, PB La Quintana has [d]-type programmed spaces that become the connection between different kinds of activities (e.g. the space with material on local studies becomes the main access to the computer room). One may call this a 'spatial grouping', since it is spatial configuration that produces a (programmatic) link of 'local studies – computer room'. These [d]-type spaces have the potential to become central in a cluster of programmes, since they are likely to be chosen as paths between programmed activities (e.g. this same space with material on local studies lies on the path from the computer room to the exhibition space).

6 This will be further described through integration analysis.

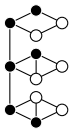
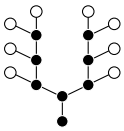
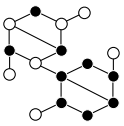
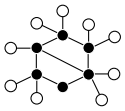
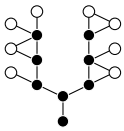
		PB San Javier	PB España	PB La Quintana	PB Belén	PB Fernando Botero
						
R1	Topological type's percentages of all spaces	[a] type: 38% [b] type: 4% [c] type: 34% [d] type: 24%	[a] type: 35% [b] type: 57% [c] type: 8% [d] type: 0%	[a] type: 27% [b] type: 13% [c] type: 47% [d] type: 13%	[a] type: 45% [b] type: 18% [c] type: 22% [d] type: 15%	[a] type: 47% [b] type: 19% [c] type: 34% [d] type: 0%
R2	Topological type's percentages of programmed spaces only	[a] type: 63% [b] type: 3% [c] type: 23% [d] type: 11%	[a] type: 93% [b] type: 7% [c] type: 0% [d] type: 0%	[a] type: 62% [b] type: 8% [c] type: 15% [d] type: 15%	[a] type: 77% [b] type: 17% [c] type: 6% [d] type: 0%	[a] type: 74% [b] type: 5% [c] type: 21% [d] type: 0%
R3	Total number of convex spaces considering the outside	78	48	38	33	32
R4	Overall topological functioning	Groups of rings of spaces accessed in sequence.	Tree-like configuration that splits the building into two programmatic sections	Two groups of rings of spaces that split the building into programmatic sections	A main group of rings of spaces that works as access to all programmes with no division into sections	(Semi-)Tree-like configuration that splits the building into two programmatic sections
R5	Diagram expressing the overall topological functioning					
R6	Maximum step depth from outside	13	13	11	8	7
R7	Topological type of outside spaces	[c] type	[c] type	[d] type	[d] type	[c] type

Table 6.25: Summary of the main characteristics regarding topological types of the system of convex spaces of each Library-Park. In Row 5, colours represent abstractly the distinction between circulation spaces (black) and programmed ones (white).

The second main difference between the libraries refers to the overall topological functioning of the distribution of programmes in the layout, in particular how programmatic sections are separated (Table 6.25, rows R4 and R5). Three Library-Parks split their programmes into sections: PB España, PB La Quintana and PB Fernando Botero. These libraries separate the programmes through a correspondence with the purposes of functioning as 'interactive learning facility' (workshops, cafes, exhibition rooms and playgrounds) and of functioning as a 'formal learning facility' (libraries and local studies). PB España and PB Fernando Botero

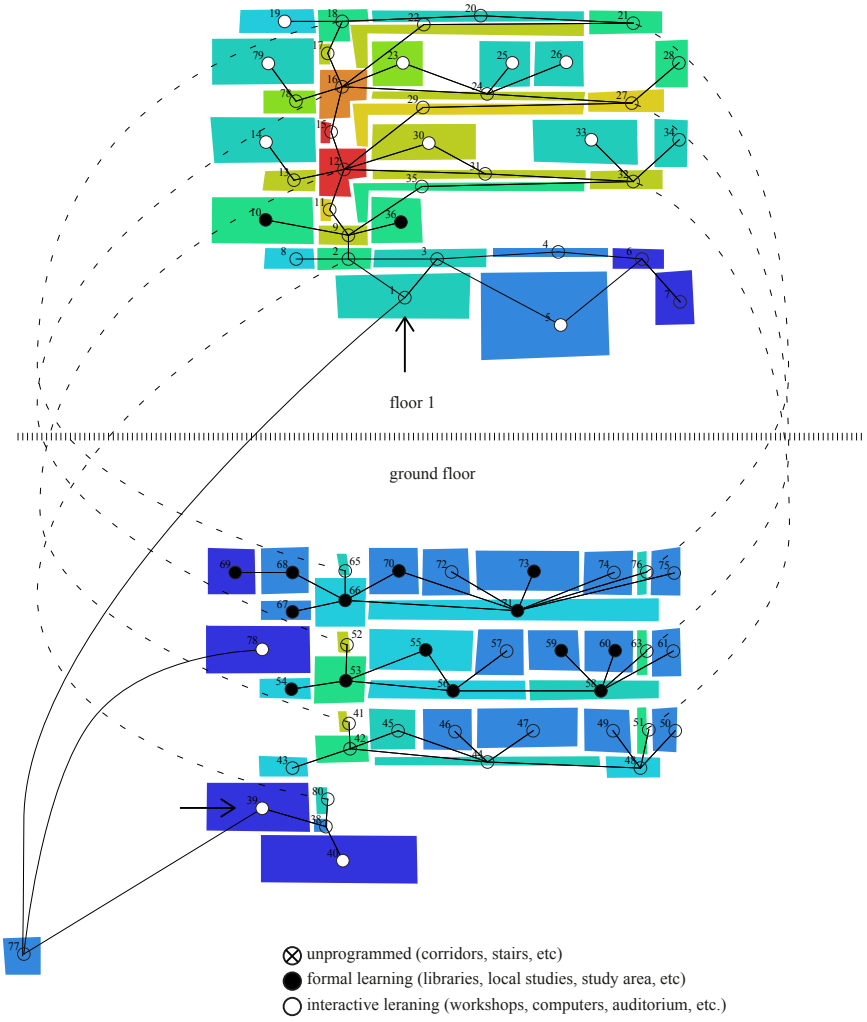
distribute programmes in a tree-like configuration, where rings of circulation are trivial, covering the same programmed activities. PB La Quintana, on the other hand, structures each programmatic section in rings of spaces that have the potential to blur the abstract boundaries between each programme. PB San Javier and PB Belén do not separate programmes into 'purposeful sections'. However, the overall convex spaces' structures of these two libraries differ significantly. PB San Javier convex system can be described as groups of rings of spaces accessed in sequence. PB Belén convex system is not organised in a sequence of spaces, but through a few rings of circulation spaces that lead to dead-end programmed spaces.

Finally, the third main difference between the libraries refers to the topological position of the outside space in relation to the interior spaces of the buildings. In PB San Javier, PB España and PB Fernando Botero, the outside space is a [c]-type space (Figures 6.06, 6.11 and 6.23); while in PB La Quintana and PB Belén, it is a [d]-type (Figures 6.15 and 6.19). This means that the buildings have two entrances (the ones where outside space is a [c]-type) or three or more entrances (the ones where it is a [d]-type) – and obviously a visitor may enter through one door and exit through another. However, in most libraries many of these rings with the outside space go only a few steps deep in the buildings, not reaching most of programmed spaces. The only exception is PB Belén, where the rings that close the [d]-type circulation with the outside space go up to half of the depth of the entire building, reaching almost all accesses to programmed spaces. This means that visitors who are only crossing the building from one entrance to another will penetrate the common circulation of programmed activities and will be only one step depth to access any programmed activity. This aspect will probably influence the circulation system to be very diverse in terms of range of user groups.

6.2. Programmes and convex integration

As said previously, the Library-Parks have the same set of programmes and were built to fulfil the same social and political purposes. However, when one addresses the problem of how these programmes and purposes are retrieved from each library, one may start to find significant differences among the cases. In fact, when looking at how programmes are organised in the spatial layout, one may find that the libraries cannot be considered the same building type. In particular, space syntax research has shown that cultural genotypes are retrieved from a systematic pattern of inequality between integration values and programmatic descriptions (Hillier & Hanson 1984; Hillier et al. 1984; Hanna 2011). In fact, space syntax research calls 'inequality genotype' precisely when asymmetries in spatial configuration consistently correlate with the same programmatic descriptions in a sample of buildings (Hillier 1996, p.196). This analysis looks at how asymmetries in integration values correlate with programmatic descriptions in order to see what correspondences can be found between both variables among the sample of buildings studied. Therefore, this analysis aims at describing types of Library-Parks based on these two variables.

A first aspect regarding similarities and differences among the buildings concerns looking at where the highest values of integration are found. Since these are the spaces that, by definition, are the closest to all others (in terms of depth), they have the potential to be accessed easily from different points of the building (to-movement) – and conversely, they might also function as transition spaces in the path between spaces distant to each other (through-movement). The highest values of integration are found: in a corridor space at PB San Javier (Figures 6.26 and 6.27, integration value: 1.22); in the entrance hall at PB España (Figures 6.28 and 6.29, integration value: 0.77); in a semi-open entrance hall at PB La Quintana (Figures 6.30 and 6.31, integration value: 1.11); in a semi-open corridor space at PB Belén (Figures 6.32 and 6.33, integration value: 1.69); and in the entrance hall, information desk and space for material on local studies at PB Fernando Botero (Figures 6.34 and 6.35, integration value: 1.04). In short, all integration cores pick up spaces assigned mainly as circulation. It is noteworthy, however, that while the integration cores of PB San Javier, PB La Quintana and PB Belén have no other function other than being



Convex Integration Analyses

a. San Javier	0.45	1.22
b. España	0.28	0.77
c. La Quintana	0.41	1.11
d. Belén	0.43	1.69
e. Fernando Botero	0.49	1.04

Figure 6.26: PB San Javier as a system of convex spaces. Hotter colours of convex spaces indicate higher integration values. The system of convex spaces is represented with dots connected by lines. The dots represent whether the convex space is programmed (filled with black or white) or unprogrammed (transparent). The colour of programmed dots represent whether the programme is associated with 'formal learning' (black) or 'interactive learning' (white).

circulation spaces, in PB España and PB Fernando Botero integration picks up the spaces of the main information desks. In other words, in these two buildings, the spaces that have the configurational potential to function as centres of unprogrammed encounters in the building are the ones that are certainly under surveillance by staff members. Nevertheless, different from all the other buildings, PB Fernando Botero's integration core has another programme, namely '*sala mi barrio*' ("room 'my

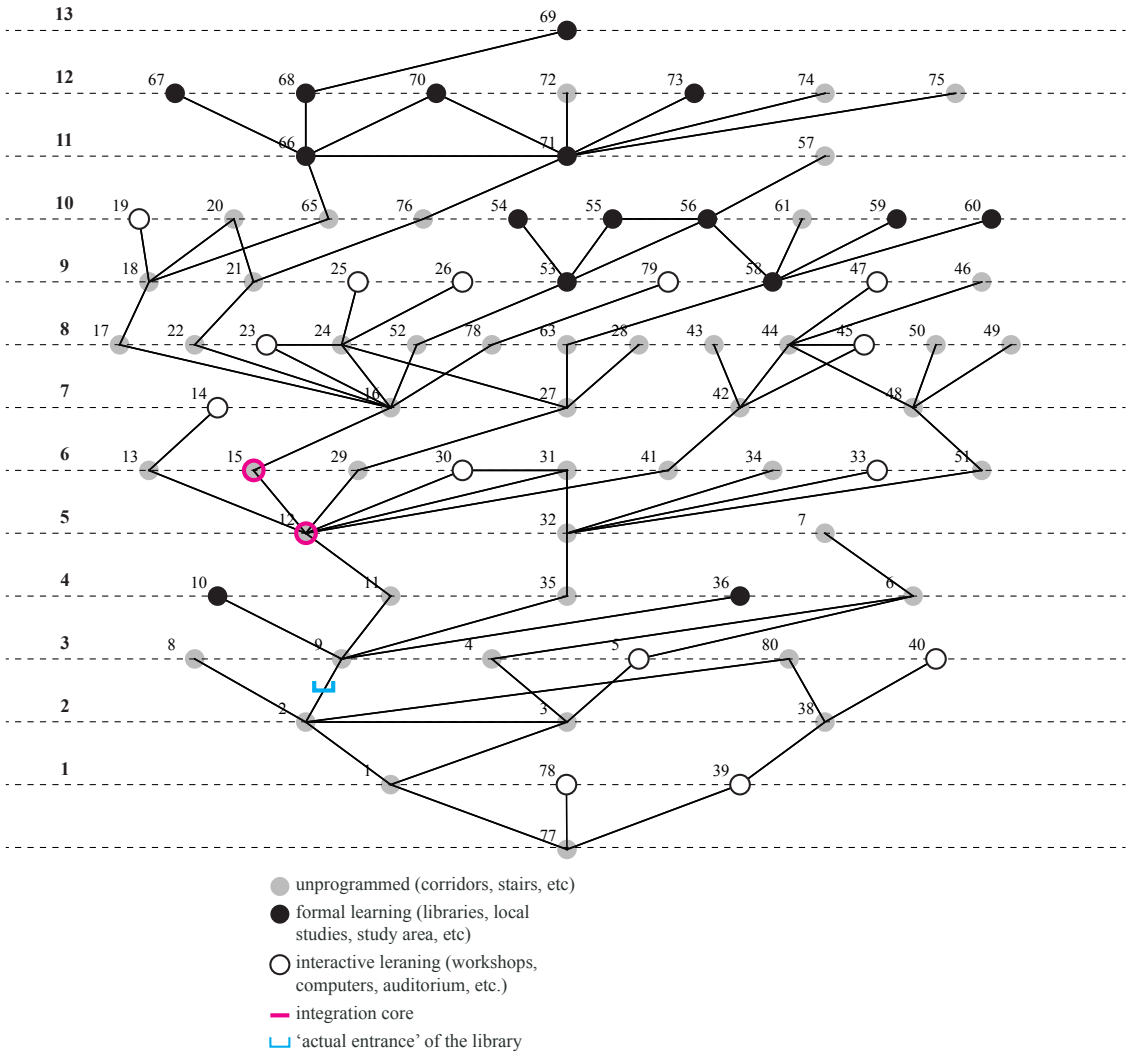


Figure 6.27: Justified graph of PB San Javier's convex spatial structure. The graph starts from the outside space (space 77). The dots represent whether the convex space is programmed (filled with black or white) or unprogrammed (filled with grey). The colour of programmed dots represent whether the programme is associated with 'formal learning' (black) or 'interactive learning' (white). The integration core is highlighted in magenta. The link that corresponds to the 'actual entrance' of the library is indicated.

neighbourhood'"), which is a space with material on local studies. This programme includes meetings and collective studies on the theme of the neighbouring urban and social context and its issues. Therefore, as this space is central in the building, there are great chances that many visitors participate with (or at least become aware of) the activities of this particular programme.

In regards to the integration cores, aside looking to their programmes, it is worth understanding their position in relation to the entrance, which is shown in the justified graphs of the libraries' convex systems (Figures 6.27, 6.29, 6.31, 6.33 and 6.35). PB San Javier's integration core is 5 steps deep, PB España's is 2, PB La

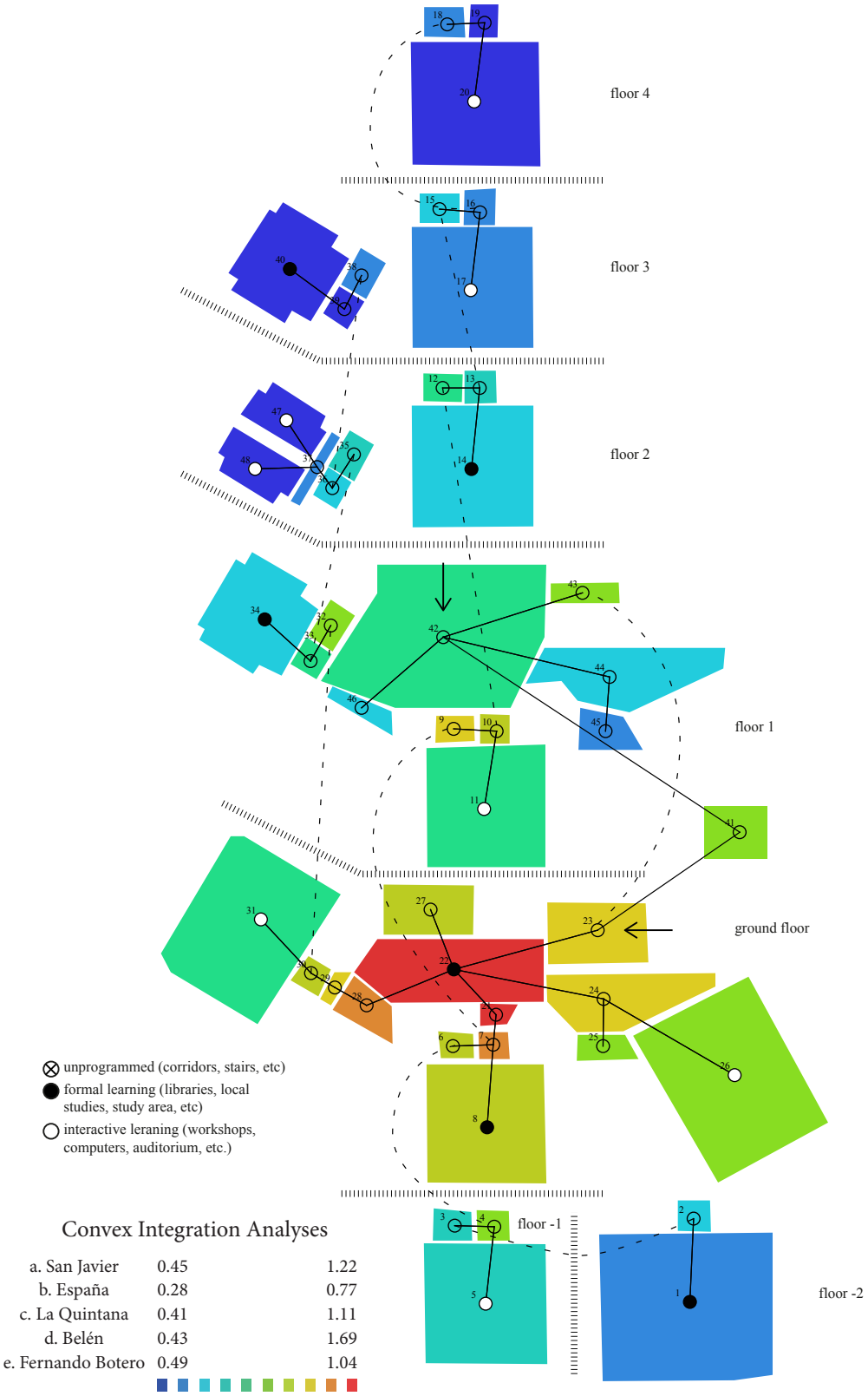


Figure 6.28: PB España as a system of convex spaces. Hotter colours of convex spaces indicate higher integration values. The system of convex spaces is represented with dots connected by lines. The dots represent whether the convex space is programmed (filled with black or white) or unprogrammed (transparent). The colour of programmed dots represent whether the programme is associated with 'formal learning' (black) or 'interactive learning' (white).

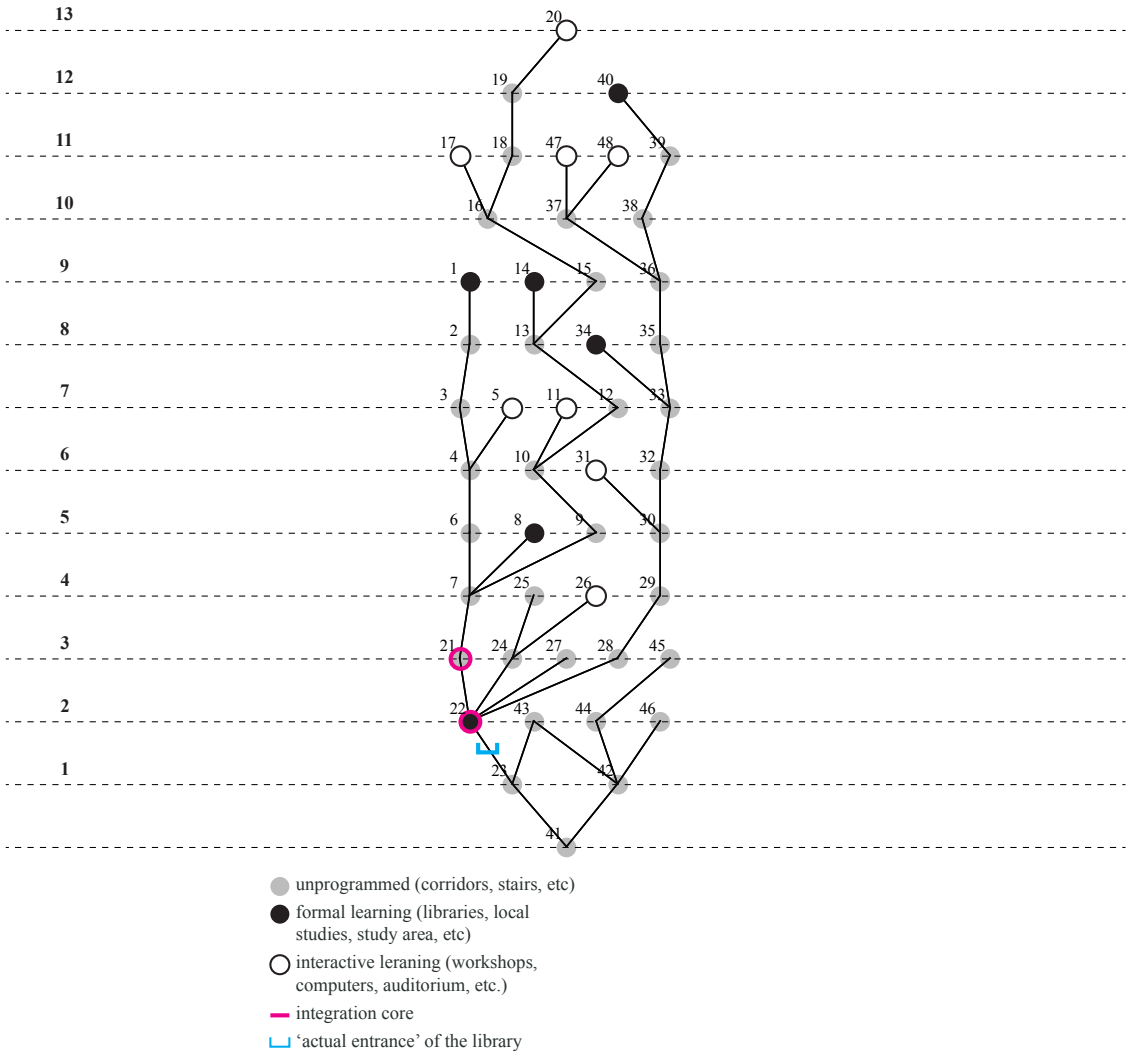
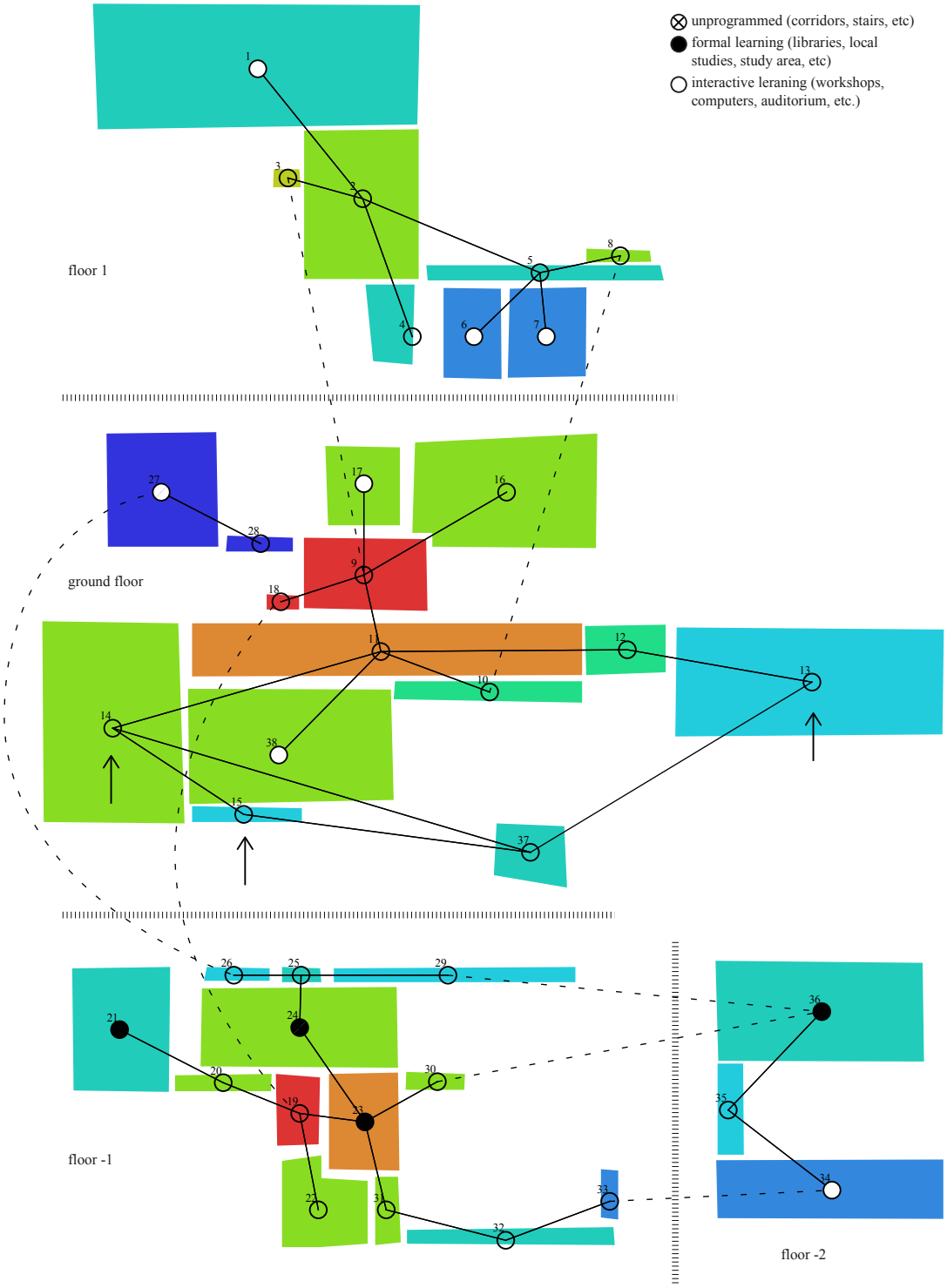


Figure 6.29: Justified graph of PB España's convex spatial structure. The graph starts from the outside space (space 41). The dots represent whether the convex space is programmed (filled with black or white) or unprogrammed (filled with grey). The colour of programmed dots represent whether the programme is associated with 'formal learning' (black) or 'interactive learning' (white). The integration core is highlighted in magenta. The link that corresponds to the 'actual entrance' of the library is indicated.

Quintana's is 3, PB Belén's is 2 and PB Fernando Botero's is only 1 step from the entrance. As seen in the previous analysis (of the correspondences of programmes with topological types [a], [b], [c] and [d]), the fact that the buildings have either two entrances (the ones where outside space is a [c]-type, namely PB San Javier, PB España PB and Fernando Botero) or three or more entrances (the ones where it is a [d]-type, namely PB La Quintana and PB Belén) suggests that visitors may enter through one door and exit through another. What one can observe here is whether this loop (from outside to outside) reaches the integration core. This is a relevant aspect because the integration core is the probable location where movement from programmed space



Convex Integration Analyses

a. San Javier	0.45	1.22
b. España	0.28	0.77
c. La Quintana	0.41	1.11
d. Belén	0.43	1.69
e. Fernando Botero	0.49	1.04

Figure 6.30: PB La Quintana as a system of convex spaces. Hotter colours of convex spaces indicate higher integration values. The system of convex spaces is represented with dots connected by lines. The dots represent whether the convex space is programmed (filled with black or white) or unprogrammed (transparent). The colour of programmed dots represent whether the programme is associated with 'formal learning' (black) or 'interactive learning' (white).

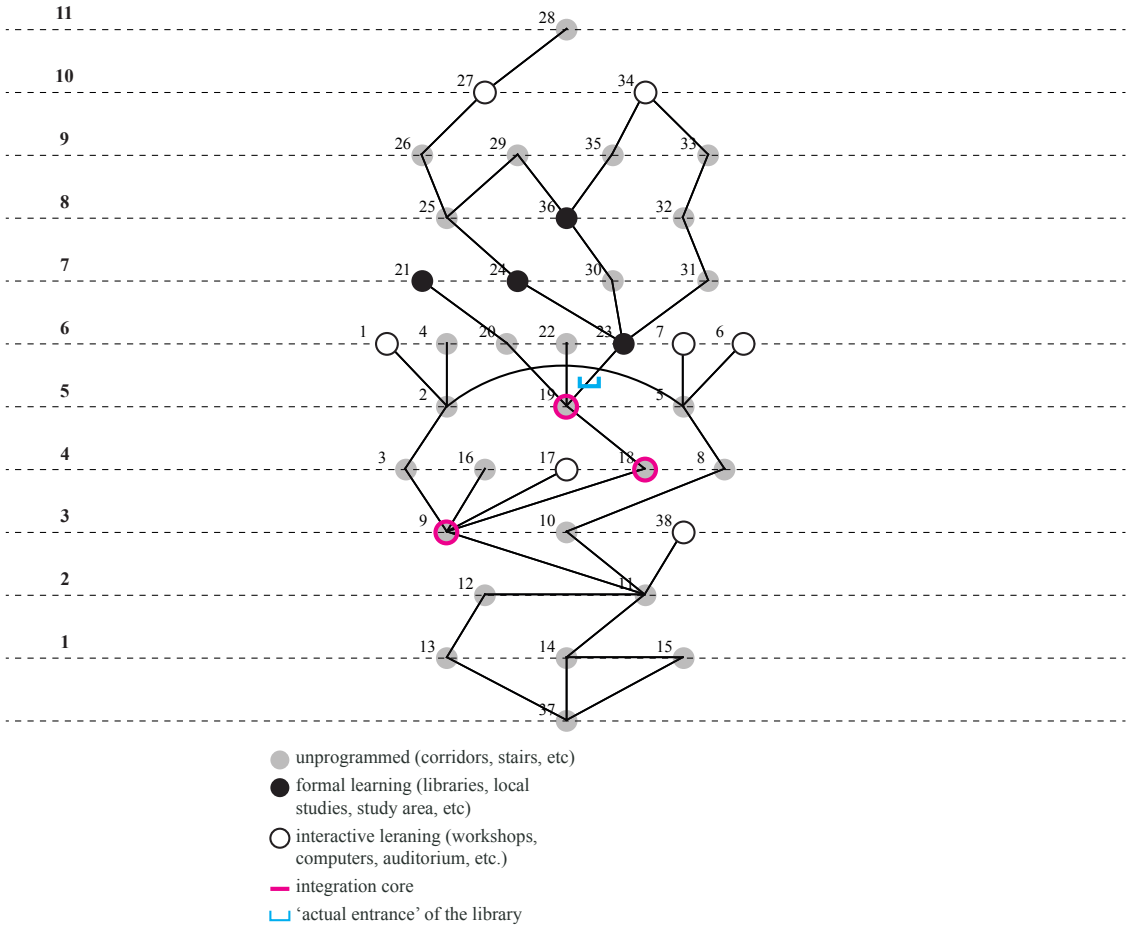


Figure 6.31: Justified graph of PB La Quintana's convex spatial structure. The graph starts from the outside space (space 37). The dots represent whether the convex space is programmed (filled with black or white) or unprogrammed (filled with grey). The colour of programmed dots represent whether the programme is associated with 'formal learning' (black) or 'interactive learning' (white). The integration core is highlighted in magenta. The link that corresponds to the 'actual entrance' of the library is indicated.

to programmed space will concentrate. By being in a ring of spaces that links to the outside, the integration core can work for both internal movement and movement from urban space to urban space. This happens only in PB Belén and PB Fernando Botero. In other words, in these two libraries one may expect the integration core to be very diverse in terms of range of user groups. In addition, it is interesting to observe where the 'actual entrance' of the libraries is located in relation to the integration core (see indication of actual entrance in blue in all libraries' justified graphs, Figures 6.27, 6.29, 6.31, 6.33 and 6.35). PB Belén and PB La Quintana have the 'actual entrance'[7] deeper than the integration core (Figures 6.31 and 6.33), PB San

7 As I discussed in the previous chapter, in all Library-Parks there is a threshold where a guard stands to control the entrance of the library. Aside this staff member, these thresholds have also

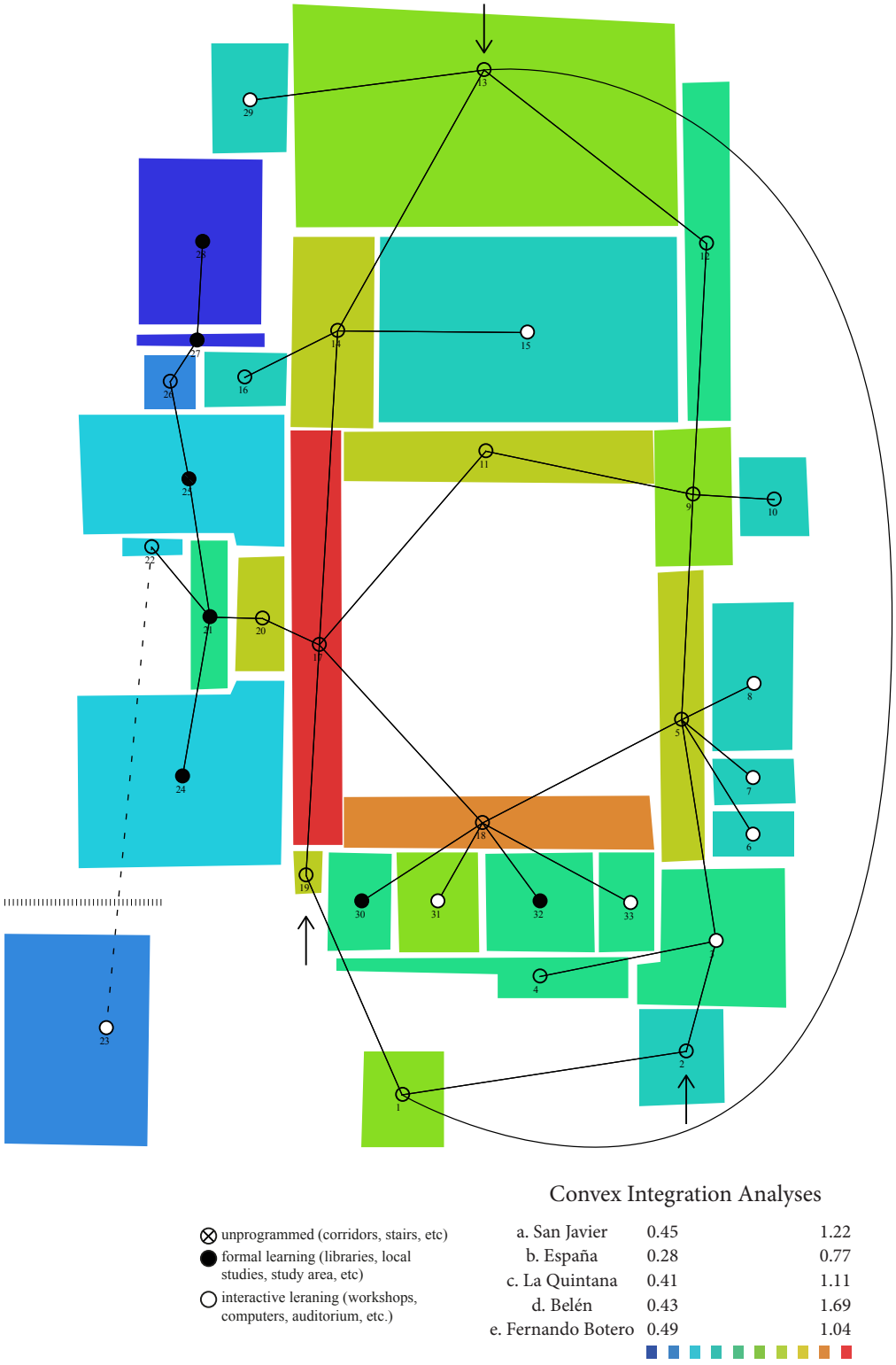


Figure 6.32: PB Belén as a system of convex spaces. Hotter colours of convex spaces indicate higher integration values. The system of convex spaces is represented with dots connected by lines. The dots represent whether the convex space is programmed (filled with black or white) or unprogrammed (transparent). The colour of programmed dots represent whether the programme is associated with 'formal learning' (black) or 'interactive learning' (white).

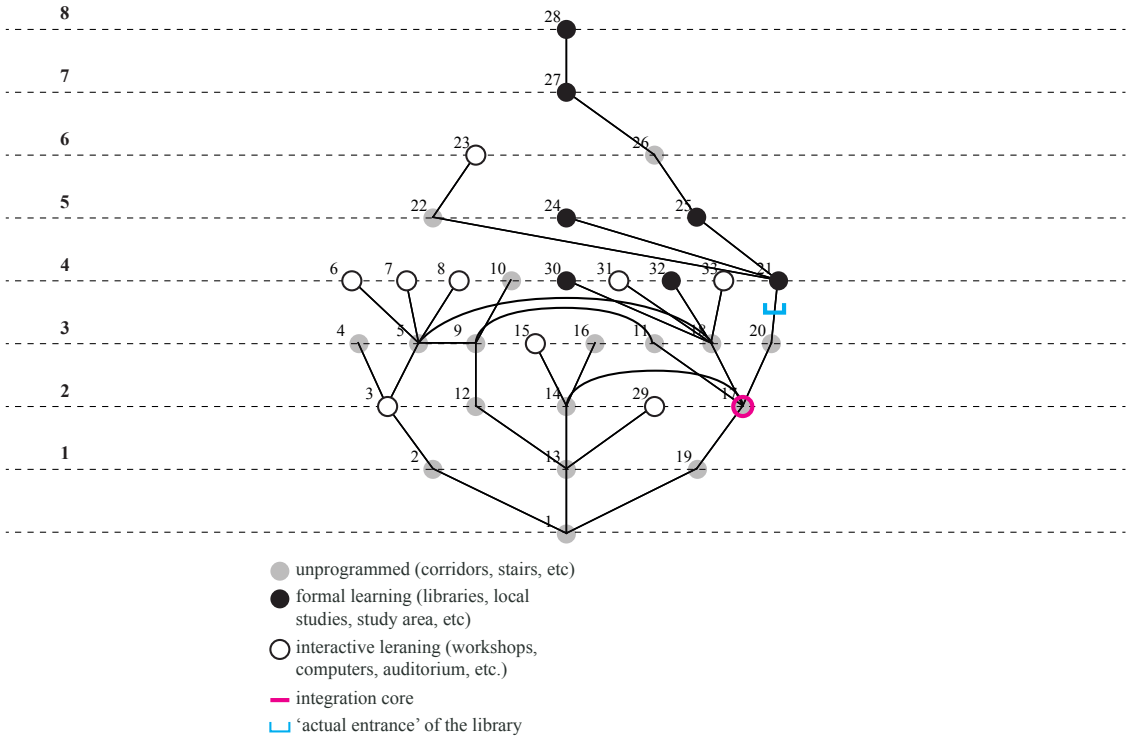


Figure 6.33: Justified graph of PB Belén's convex spatial structure. The graph starts from the outside space (space 1). The dots represent whether the convex space is programmed (filled with black or white) or unprogrammed (filled with grey). The colour of programmed dots represent whether the programme is associated with 'formal learning' (black) or 'interactive learning' (white). The integration core is highlighted in magenta. The link that corresponds to the 'actual entrance' of the library is indicated.

Javier and PB España have the actual entrance shallower than the integration core (Figures 6.27 and 6.29), and the 'actual entrance' of PB Fernando Botero is located in between spaces of the integration core (Figure 6.35). This means that the location where movement is likely to concentrate is less controlled in PB La Quintana and PB Belén than in the other three libraries. These aspects will be discussed in the next chapter, where observed movement is analysed.

A second aspect concerns looking at programmed spaces only (excluding corridors and stairs) and map their correspondences with integration values. Table 6.36 shows the integration values of all programmed spaces in all buildings[8]. One can then organise the programmes in each building according to these values (Table 6.37), in order to capture whether there are systematic patterns among cases (Figures

electronic parallel totems that recognise whether an item is wrongly being taken away from the library (similar to the ones found in shops). I called this threshold 'actual entrance'.

8 Variation of values (represented with cooler or hotter colours) can only be compared within each building.

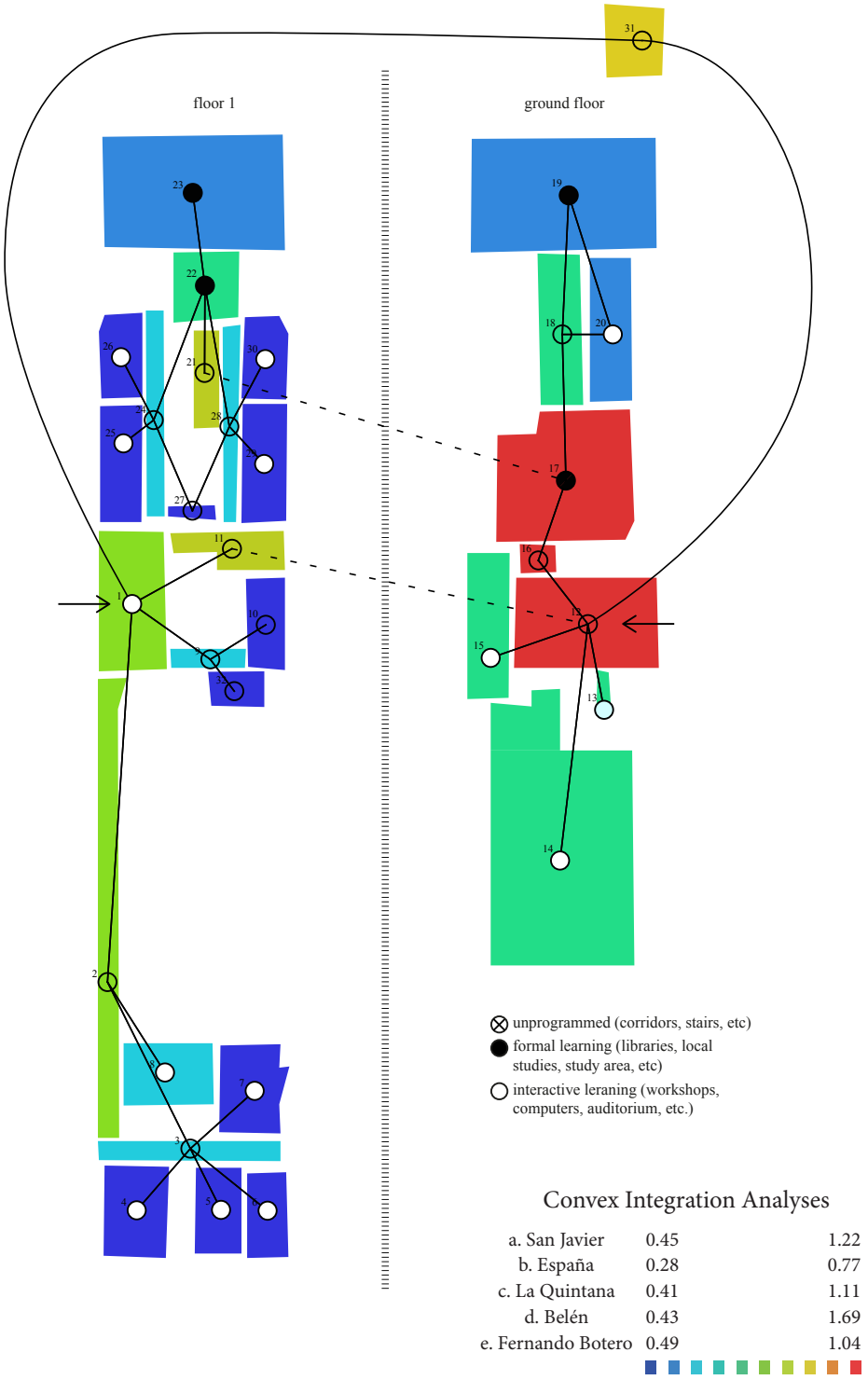


Figure 6.34: PB Fernando Botero as a system of convex spaces. Hotter colours of convex spaces indicate higher integration values. The system of convex spaces is represented with dots connected by lines. The dots represent whether the convex space is programmed (filled with blue or magenta) or unprogrammed (filled with white). The colour of programmed dots represent whether the programme is associated with 'formal learning' (blue) or 'interactive learning' (magenta).

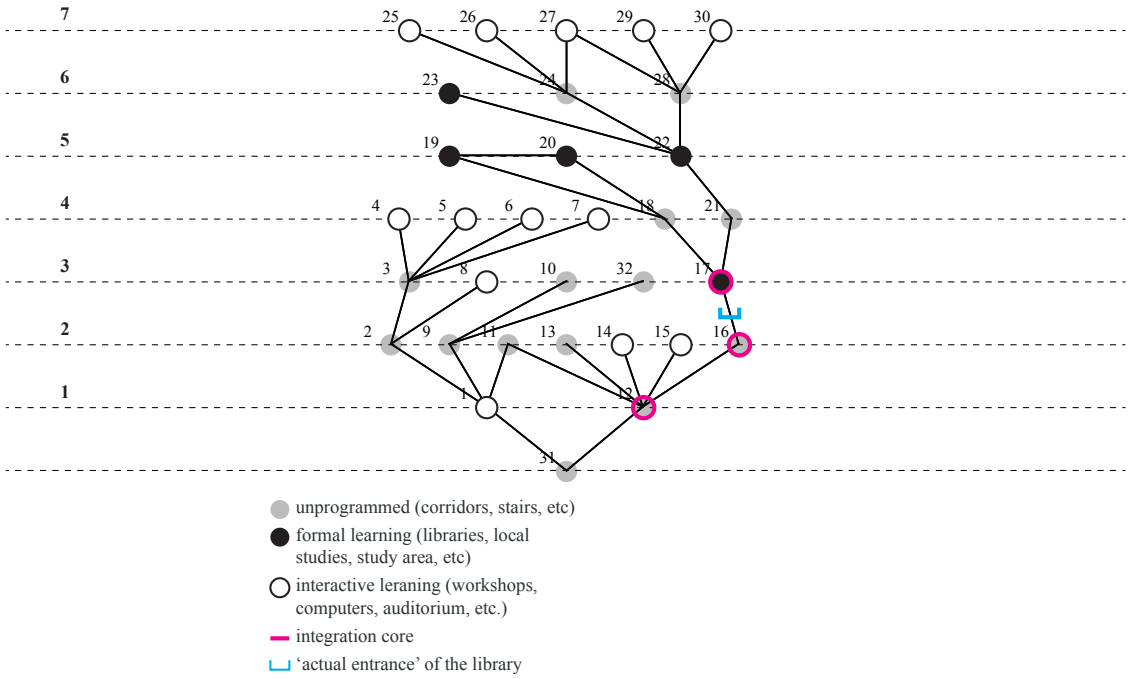


Figure 6.35: Justified graph of PB Fernando Botero's convex spatial structure. The graph starts from the outside space (space 31). The dots represent whether the convex space is programmed (filled with black or white) or unprogrammed (filled with grey). The colour of programmed dots represent whether the programme is associated with 'formal learning' (black) or 'interactive learning' (white). The integration core is highlighted in magenta. The link that corresponds to the 'actual entrance' of the library is indicated.

6.38 and 6.39). The main aspect that this analysis revealed is that the libraries could be separated into 3 main types (Figure 6.39 and Table 6.37): a first one (Figure 6.39, on the left) that has the children's playground, auditorium and tables for studying as the highly integrated programmes; followed by the space with material on local studies and both adult and children libraries; and which places workshops and exhibition room in segregated areas. This type can be retrieved in both España and La Quintana Library-Parks. The second type (Figure 6.39, on the right) places the room with material on local studies, the cafe, workshops, exhibition room and auditorium as the integrated programmes; whereas computer room, tables for studying and both adult and children libraries are placed in segregated spaces. This type can be retrieved in both Belén and Fernando Botero Library-Parks. The third type is represented by San Javier Library Park, which differs from the previous two groups mainly because it places the computer rooms among the most integrated programmes (Figure 6.38). The most significant difference between type 1 (Figure 6.39, on the left, PB España and PB La Quintana) and type 2 (Figure 6.39, on the right, PB Belén and PB Fernando

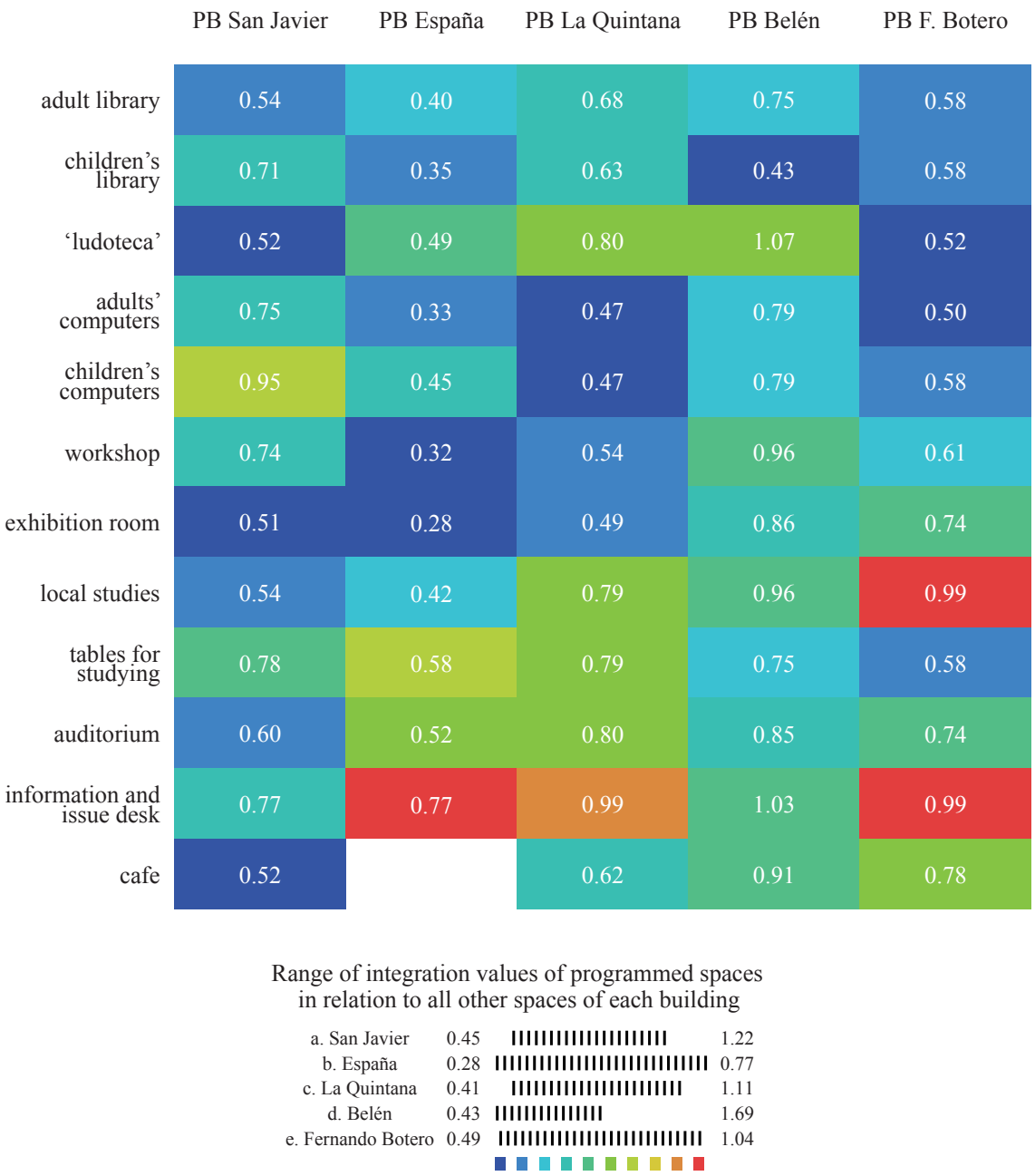


Table 6.36: Diagram mapping programmes and their integration values in each library. Note that the variation of values (represented with cooler or hotter colours) can only be compared within each building. The chart indicating convex integration analysis for all cases gives the lower and higher values of each library – and, therefore, their correspondent colour scheme.

Botero) is that the former places the programmes related to the buildings functioning as 'formal learning facilities' as the most integrated ones. On the other hand, type 2 is the exact opposite, where programmes that relate to the building functioning as 'interactive learning facility' are the most integrated ones.

Aside from these types, it was observed that the space with information desk (Figure 6.38, blue line starting with "ID") is the only programme that remains relatively

PB San Javier	CC > TS > ID > AC > WK > CL > AU > AL = LS > LU = CF > ER
PB España	ID > TS > AU > LU > CC > LS > AL > CL > AC > WK > ER
PB La Quintana	ID > LU = AU > LS = TS > AL > CL > CF > WK > ER > AC = CC
PB Belén	LU > ID > WK = LS > CF > ER > AU > AC = CC > TS = AL > CL
PB Fernando Botero	ID = LS > CF > ER = AU > WK > AL = CL = CC = TS > LU > AC

Adult Library = AL; Children's Library = CL; 'Ludoteca' = LU; Adult Computer = AC; Children's Computer = CC; Workshops = WK; Exhibition Room = ER; Local Studies = LS; Tables for Studying = TS; Auditorium = AU; Information Desk = ID; Cafe = CF

Table 6.37: Ordering programmes according to integration values in each building.

highly integrated among all buildings. This space deals with the visitors' subscriptions to the Library-Parks; as well as coordinates the information about the use of all the programmes in the building. It is very convenient for the whole functioning of the Library-Parks that this programme is among the most integrated ones, since all other programmes are somehow organised by the staff in the information desk.

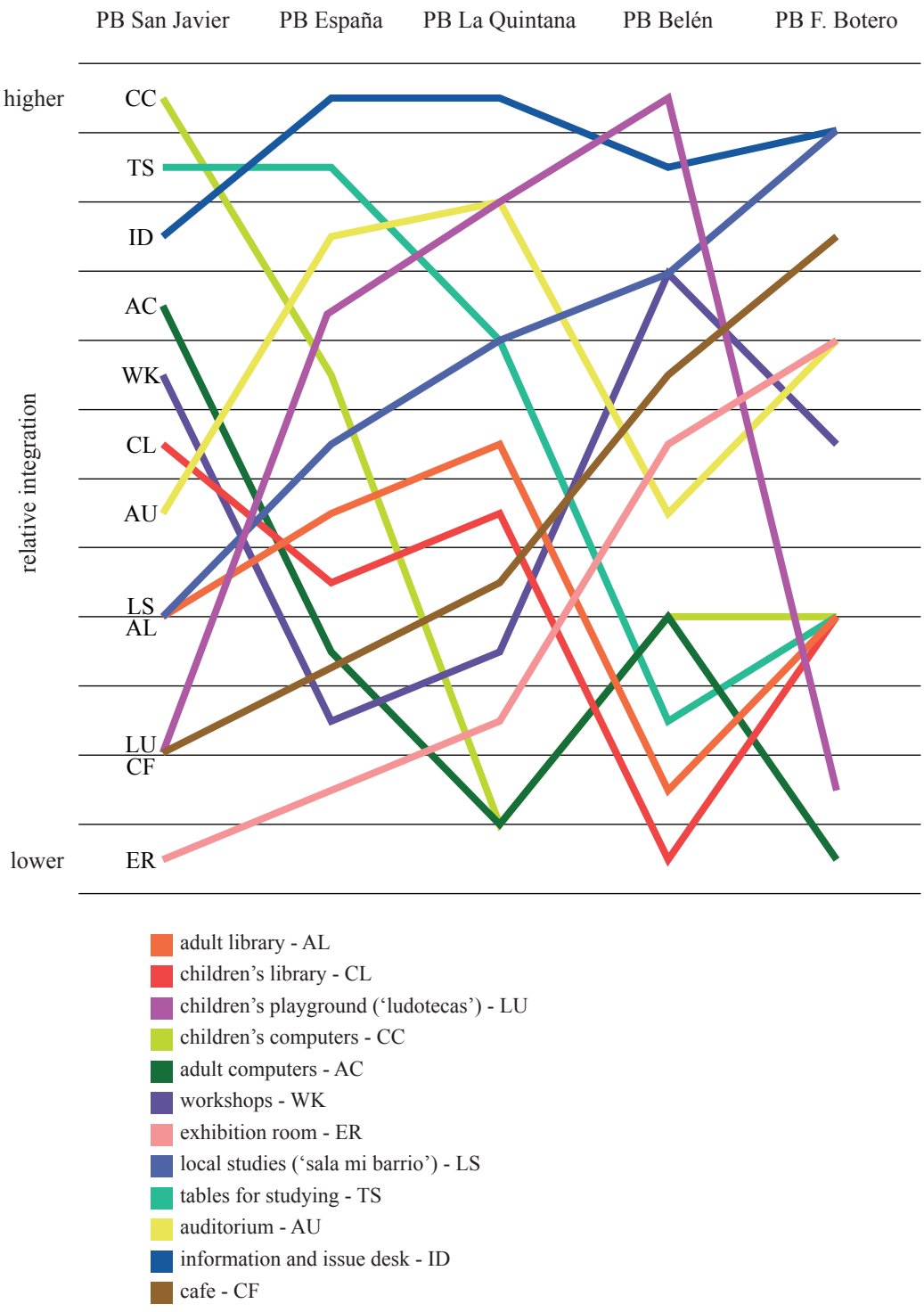


Figure 6.38: Diagram exposing the variation of ordering of programmes according to integration values in each building.

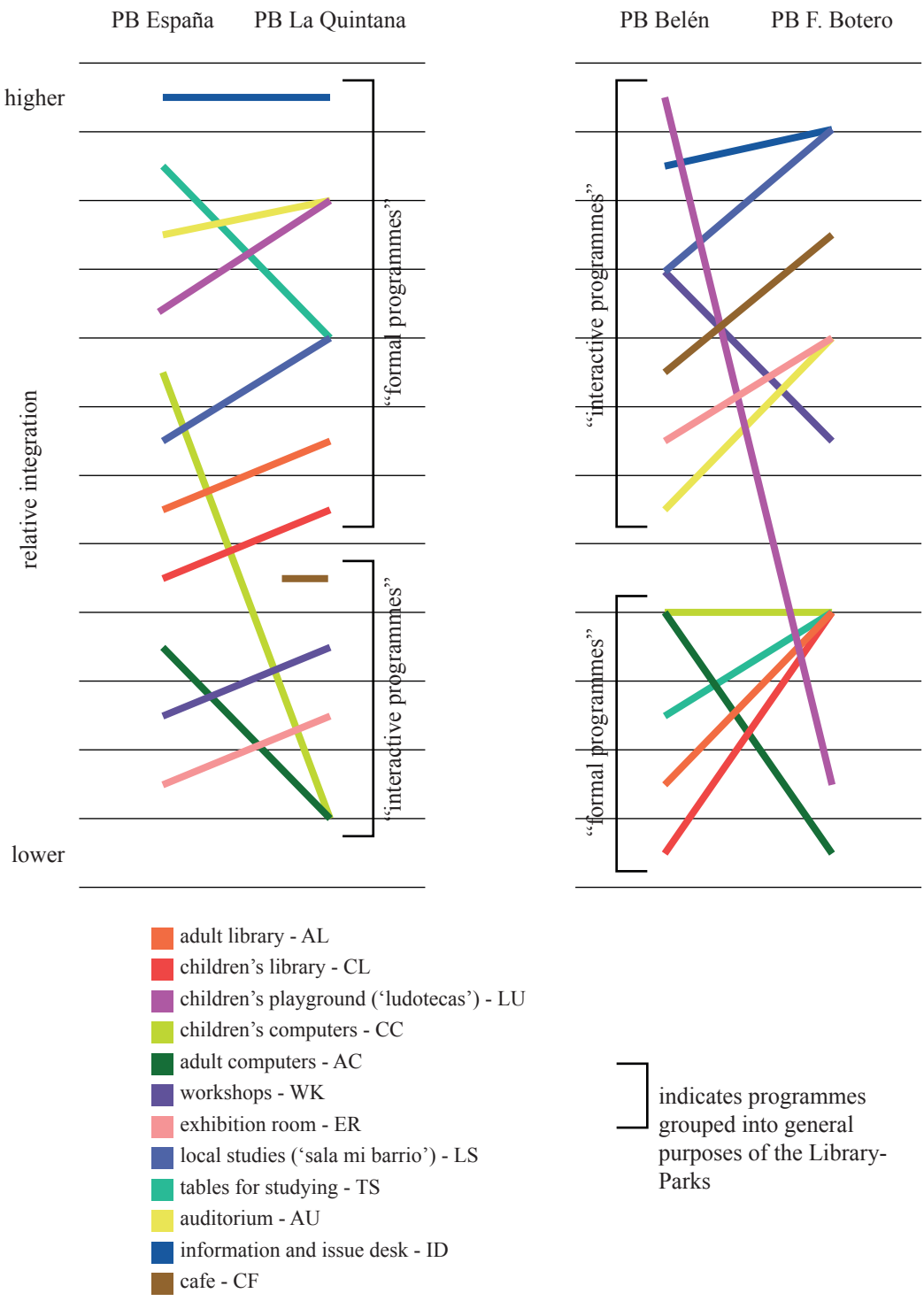


Figure 6.39: Two pairs of buildings that present similar ordering of programmes according to integration. This might indicate types based on programmatic labels consistently being placed in similar parts of the spatial structure.

Architectural qualities of the most integrated spaces

This section looks at the architectural qualities of the spaces with the greater potential to generate unprogrammed social encounters – namely, the most integrated spaces of the buildings. In this analysis, besides looking to convex integration, integration using VGA is also used (which were presented in the previous chapter). The architectural qualities regarding visibility, materiality, furniture, etc. are aspects that may suggest overall affordances[9] of these spaces that have the grater potential for unprogrammed encounters. This analysis will look at a few qualities and properties in each building, namely: a) area of the most integrated convex space; b) furniture and its layout; c) isovist from the centres of the spaces; d) some other qualitative characteristics.

In PB San Javier, the most integrated convex space has approximately 25sqm, which is mostly freed of furniture to allow movement from various connections (Figure 6.40a and 6.40b). The only furniture is a pair of sofas that suggest a relaxed form of occupation. From this space, the 'main spine' of circulation can be completely seen (Figure 6.40a, isovist indicated in yellow). Since there are many glass divisions in the building, this field of view penetrates many spaces for programmed activities, principally the computer rooms and workshops.

In PB España, the most integrated convex space has approximately 125sqm, which is occupied by furniture in a certain way that does not interrupt the main lines of movement from the entrance of the library to other spaces (Figure 6.41a and 6.41b). The furniture consists of comfortable seats that suggest a relaxed form of occupation. From this space, only a few other spaces can be seen. In fact, this field of view penetrates only another space for programmed activities, namely the adult library and its issue desk.

In PB La Quintana, the most integrated convex space has approximately 125sqm, which has no furniture (Figure 6.42a and 6.42b). From this space, only a few other spaces can be seen, namely the computer room and the children's playground. It is noteworthy that the view to the computer room does not translate into direct access: in order to reach it from the integration core, one must go through a series of spaces that are not visible at first. Another aspect refers to the fact that this space has many vistas to the neighbourhood, generating a 'belvedere atmosphere' (Figure 6.42b). In effect, the flooring material of this space is the same of the one used in the

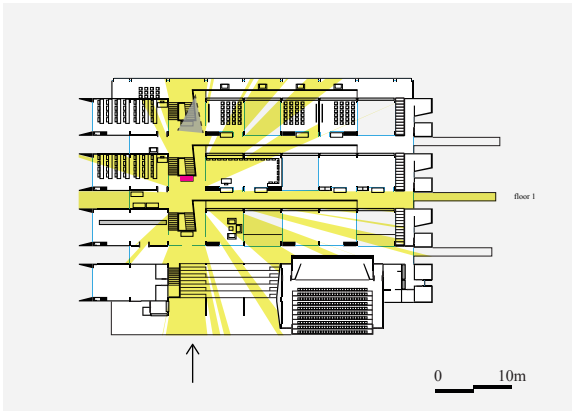
9 This approach is similar to the one proposed by Forgan (1986, pp.101–112).

pavement of the adjacent streets, an aspect that suggests that this space is still part of the urban realm.

In PB Belén, the most integrated convex space has approximately 225sqm and has no furniture (Figure 6.43a and 6.43b). From this space, almost all other spaces of the library can be seen: the children's library is the only programmed space not visually accessible. In fact, the relation between the area of the isovist from the most integrated space (Figure 6.43a, in yellow) in relation to the total area of the building is of 73%, being the highest rate among the libraries and the only one that is above half the building's floor area. Even though it has no furniture, the fact that there are many electric plugs implies that visitors may use this space with electronic equipment – such as mobiles, tablets or computers (Figure 6.43b) – for long time periods. Similar to PB La Quintana, the flooring material of the integration core is the same of the one used in the pavement of the adjacent streets, suggesting that this space is still part of the urban realm.

In PB Fernando Botero, the most integrated convex space has approximately 145sqm (Figure 6.44a and 6.44b). There are various types of furniture, such as sofas, bookshelves and tables and chairs for studying. This combination suggests a mix of uses, from relaxed forms of occupation to activities related to study and work. In fact, this is the only building whose integration core is programmed: this space is a combination of 'sala mi barrio' (a space for local studies), information desk and main entrance. From this space, only a few other programmed spaces can be seen, namely the children's library and the children's computer room.

In summary, in regards to furniture layout, visibility and materiality of the integration core of each library, one could see three main types of spaces. A first type refers to PB San Javier and PB España, where the most integrated space is furnished for relaxed occupation and liberated for internal movement in the libraries. A second type refers to PB La Quintana and PB Belén, where the lack of furniture together with the flooring material suggests a continuation of the urban space. A third and last one refers to PB Fernando Botero, which creates an environment with mixed affordances, from relaxed (sofas) to formal ones (tables for concentrated study). Each one of these types concerns including unprogrammed interfaces in the core of the libraries, but in different ways: the first concerns activities related to relaxation; the second concerns urban activity; and the third concerns different activities happening in the same place.



(a)

Isovist from centre of most integrated convex space

502 2162

Isovist area in realation to the area of the building (in sqm): 23%

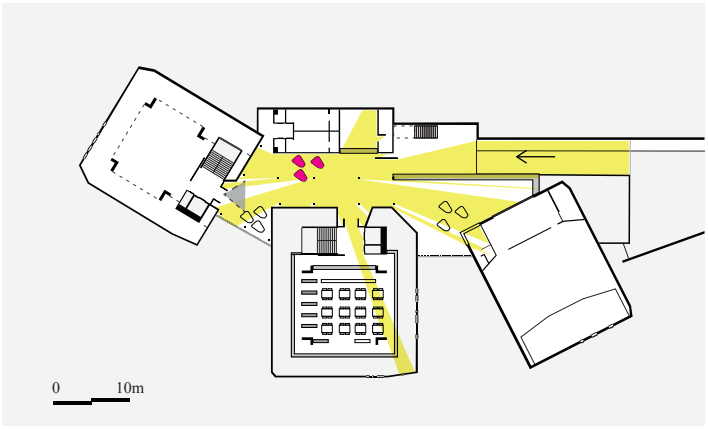
Furniture - Sofas

Point of view of photo below

(b)

furniture suggests an informal use

Figure 6.40: PB San Javier's: (a) Isovist, dimensions and furniture layout of PB San Javier's spaces that form the integration core. (b) Other noteworthy architectural qualities, in particular regarding furniture and materiality.



(a)

Isovist from centre of most integrated convex space

Furniture - Sofas

Point of view of photo below

444 2285

Isovist area in realation to the area of the building (in sqm): 20%

(b)

information desk

indoor flooring

furniture suggests an informal use

Figure 6.41: PB España's: (a) Isovist, dimensions and furniture layout of PB España's spaces that form the integration core. (b) Other noteworthy architectural qualities, in particular regarding furniture and materiality.

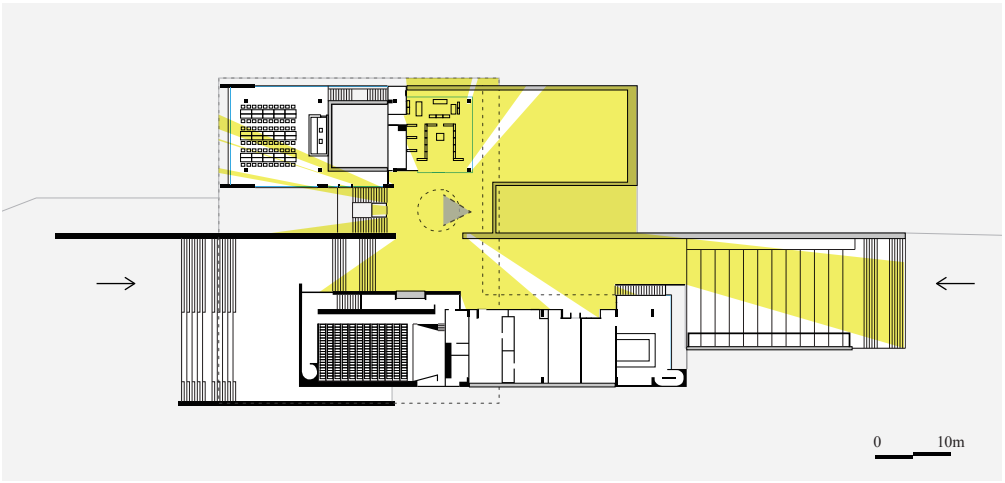
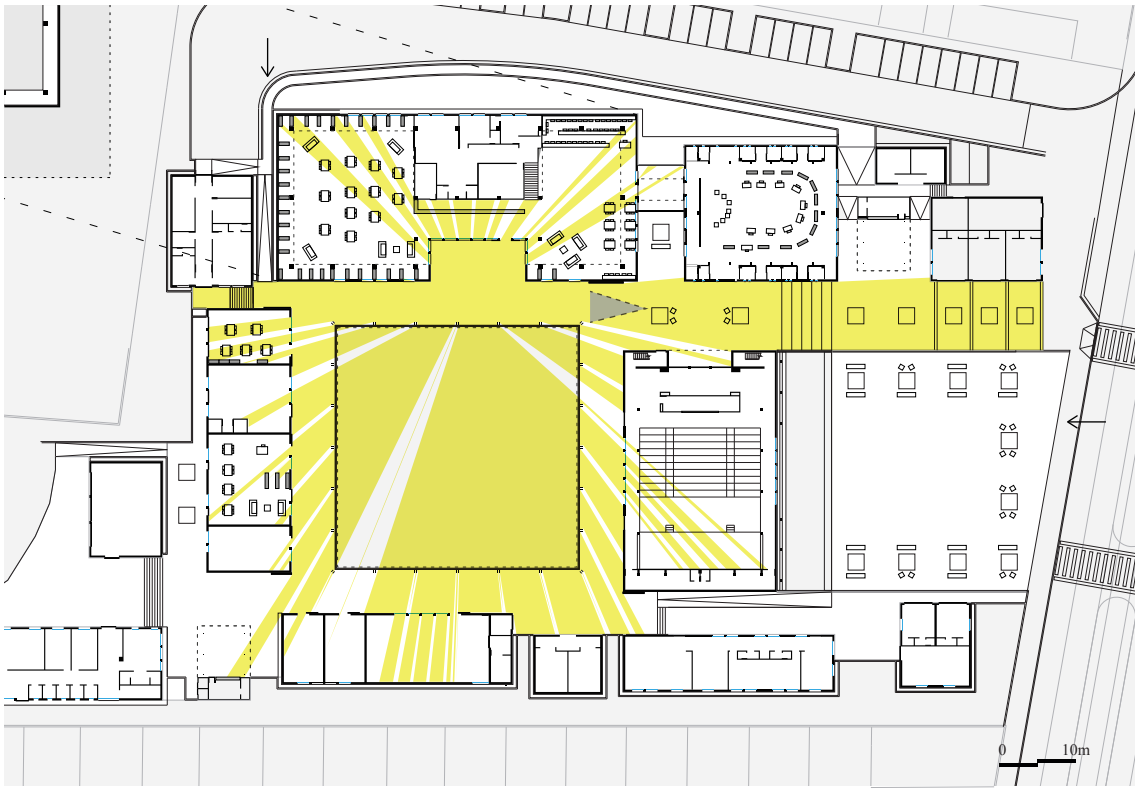


Figure 6.42: PB La Quintana's (a) Isovist, dimensions and furniture layout of PB La Quintana's spaces that form the integration core. (b) Other noteworthy architectural qualities, in particular regarding furniture and materiality.



(a)

Isovist from centre of most integrated convex space

Point of view of photo below

2709 3697

Isovist area in realation to the area of the building (in sqm): 73%

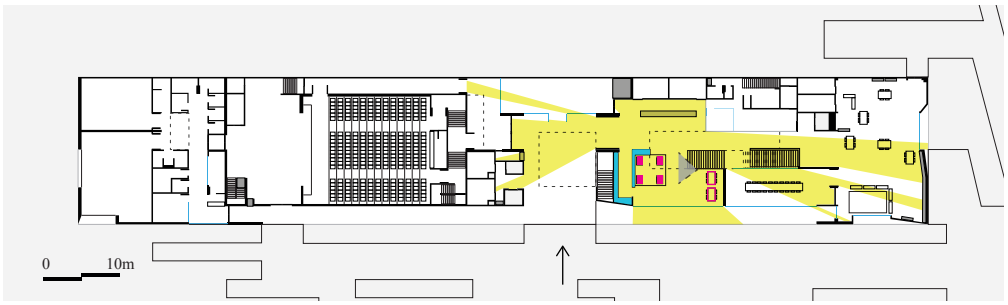
(b)

reflecting pool

continuation of urban flooring

plugs

Figure 6.43: PB Belén's (a) Isovist, dimensions and furniture layout of PB Belén's spaces that form the integration core. (b) Other noteworthy architectural qualities, in particular regarding furniture and materiality.



(a)

Isovist from centre of most integrated convex space

Furniture - Sofas

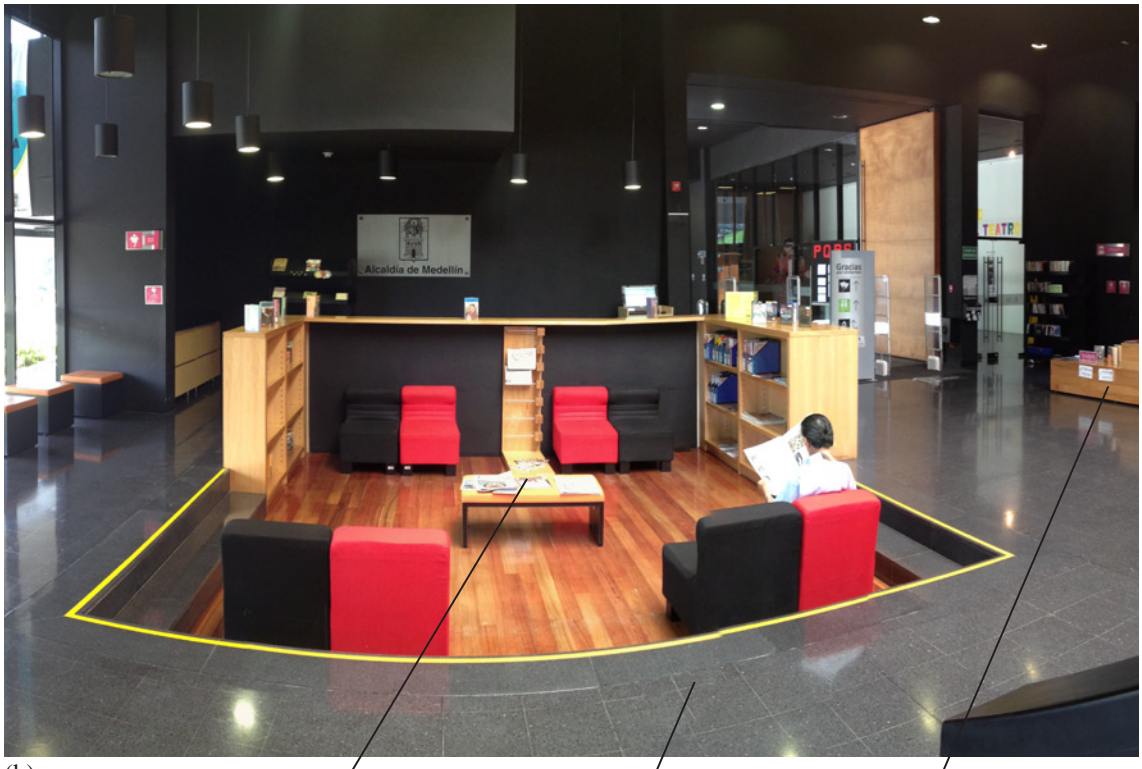
Furniture - Table and chairs

Furniture - Bookshelves

Point of view of photo below

515 3863

Isovist area in realation to the area of the building (in sqm): 13%



(b)

newspapers and magazines

indoor flooring

information desk

Figure 6.44: PB Fernando Botero's (a) Isovist, dimensions and furniture layout of PB Fernando Botero's spaces that form the integration core. (b) Other noteworthy architectural qualities, in particular regarding furniture and materiality.

6.3. Findings

This chapter addresses the problem of how to categorise and interpret the Library-Parks considering the arrangements of their spaces and programmes. It describes the libraries through their system of convex spaces in order to analyse them in terms of topological distribution of each programme and in terms of differences in integration for groups of programmes. It is found that the five buildings differ significantly from one another, particularly in relation to how they spatially combine their different functions as [i] formal learning facilities, [ii] interactive learning facilities and [iii] extensions of public space. It is found that each of these different arrangements implies affordances to different forms of use, especially if one considers spatial and programmatic constraints to movement and occupation patterns. This is a significant finding precisely because these buildings' main aim is to construct community values through the interactions between visitors engaging in informal co-inhabitation – a construction that is subjected to constraints from architectural arrangement. This section (6.3) synthesises the main characteristics of the spatial distribution of programmes of each library, suggesting what these characteristics imply in terms of affordances to patterns of occupation and movement.

Parque-Biblioteca San Javier

The analyses in sections 6.1 and 6.2 indicate that the spatial arrangement of programmes of PB San Javier mixes its threefold functioning as formal and interactive learning facility and extension of public space. Space does not separate programmes into functional branches (as seen in PB España, PB La Quintana and PB Fernando Botero) – but it organises them into 4 groups of mixed programmes, accessed by a sequence of spaces (which I called 'main spine'). Most of the programmed spaces of PB San Javier are [a]-types (63%), which means that these programmes function as destinations only and visitors who do not go to a particular programme are not likely to enter its space[10]. In other words, visitors' occupation in these spaces

10 I discussed above that, in this building, the programmed spaces that are [b], [c] or [d] types form trivial programmatic links such as 'study space' – 'adult library'.

is expected to follow the programmatic script assigned to each of these rooms[11]. Since corridors, stairs and passages mix different programmes and since they form rings of circulation, these unprogrammed spaces will probably become the part of the building that overlays movement and occupation of different visitors (different visitors in the sense that they are using the building for different purposes). However, many of these spaces are narrow corridors (Figure 5.05d, photograph [b]), a fact that constrains the range of possible occupation patterns to activities that fit in this type of space. In other words, occupation that requires a larger space (e.g. a large group meeting) cannot happen in these corridors, having only the passages that form the 'main spine'[12] (Figure 6.40, spaces of the photograph [b]) as the spaces that can afford such kind of use. However, these are not so 'generous' spaces either: they have 5x5m, functioning as passages between many other spaces, constraining the forms of occupation that might happen there. Therefore, the analysis show that the architecture of PB San Javier constrains potential unprogrammed occupation to activities and groups of visitors that can fit in small spaces. For activities for large groups of people, the only spaces available are the ones programmed to be used as 'workshops' (10x5m). These are spaces that have to be booked in advanced in order to be used. This means that the architecture of this library implies that, beyond a certain group size, co-presence has to be organised by the institutional administration of the library. Moreover, aside from constraints related to the sizes of the spaces, it interesting to note that due to the many glass divisions, a visitor in the most integrated space is visually aware of activities happening in almost all spaces of the same floor (Figure 6.40a, isovist in yellow). How these spatial-programmatic conditions affect real use patterns and consequently how they affect the formation of social and cultural values through informal co-inhabitation are questions that the next chapter's analyses will help addressing.

11 E.g.: the adult computer room is expected to be used as a place to access computers and nothing more.

12 Which are the most integrated spaces (Figure 6.22).

Parque-Biblioteca España

Differently from PB San Javier, PB España's spatial layout separates programmes into functional areas: one related to the library functioning as a formal learning facility; and another related to it functioning as an interactive learning facility. The programmes in each of these areas are [a]-types, working as destination only. These functional branches correspond to the 'towers' that one sees from the outside of the building. In other words, these programmes are organised in many floors[13], breaking, therefore, the continuity of the circulation system that connects them through various [b]-type spaces. This condition makes the entrance hall (Figure 6.41, spaces of the photograph 'b') – which is the most integrated space – the only space that can afford occupation that is not in a programmed area. This space is furnished with comfortable seats that suggest a relaxed form of occupation (Figure 6.41). From this space, the only other space that can be seen is the adult library and its issue desk. In summary, one sees that spatial configuration and programmatic distribution in PB España imply that occupation and movement will follow two main distinct patterns: on one hand, the integration core mixes paths between different parts of the building, offering a relaxed space that suggest an unprogrammed type of occupation; on the other hand, each of the two programmatic sections constrain occupation and movement to follow the predefined programmatic definition of those spaces.

Parque-Biblioteca La Quintana

PB España and PB La Quintana can be considered as the same type of Library-Park in the sense that both of them spatially separate their programmes into functional areas and they have a similar distribution of programmed spaces based on integration values (Table 6.37, Figures 6.38 and 6.39). However, considering the overall topological structure of their spaces, they differ significantly: while PB España is a system mainly made of [a] and [b] types, PB La Quintana has various rings of circulation ([c] and [d] types). In fact, as I described through the analysis, this building may be split into two separate groups of rings of spaces, connected by a sequence of [b]-type spaces (Figure 6.15, spaces 18 and 19 are the links between

13 Up to 7 floors difference from the lowest to the highest.

each group). The first group is a shallow one, where the cafe (Figure 6.14, space 1), children's playground (space 17), workshops (spaces 6 and 7) and auditorium (space 38) are connected. These programmed spaces are [a]-types only (Figure 6.16), and it is noteworthy the amount of unprogrammed convex spaces that have many vistas to the surroundings (Figure 6.42b) and that function as passages between adjacent streets. The second group of spaces is a deeper one, starting from space 19 (Figure 6.14), where children and adult libraries (spaces 21 and 36), computer room (space 27), exhibition room (space 34) and a section for material on local studies (space 23) are located. In this part of the building, none of the programmed spaces are [a]-types (Figure 6.16). In fact, despite the computer room (space 27), which is a [b]-type space, all other programmed spaces of this section are part of one or more rings of spaces. This fact blurs the boundaries in between these programmes, since people are likely to cross their spaces in the way between other programmes. In particular, the space dedicated to material on local studies (space 23) become a real centre of through-movement, since this space is also the entrance to this section, making it a habitual part of the path to all the other programmes. In summary, these analyses show us that apart from the [a]-type programmed spaces of the shallow part of the building (workshops, children playground and children library) all other spaces afford a mixture of forms of occupation. This is due to the fact that each of these spaces: a) provides various accesses to different parts of the building (mix of [c] and [d] types), which implicitly blurs the boundaries between programmatic scripts; b) provides a combination of different types of furniture, suggesting mix of uses (e.g. concentrated study and relaxed use in the case of the Local Studies; Figure 6.15, space 23; Figure 5.07d); and c) provides a variety of unprogrammed convex spaces, which are large enough[14] to accommodate various sizes of groups of visitors, and various types of activities (Figure 6.42b). An aspect that should be highlighted is the relationship of outside/inside, which is blurred in PB La Quintana. As described in the previous chapter, this ambiguity was intended by the architects, who used the metaphor of "indoor public street" to refer to the spaces of the library. As also seen in the previous

14 (some of them have 10x20m, as space 16, Figure 6.42b)

chapter, there are many architectural characteristics that produce the ambiguity of outside/inside in PB La Quintana[15]. What I may add here is that this ambiguity may encourage even more visitors to use the space for a great variety of activities, from large to small groups.

Parque-Biblioteca Belén

PB Belén's spatial structure can be described as a series of corridors that form rings of spaces ([c] and [d] types) (Figure 6.19) that link to programmed [a] and [b] types spaces (Figure 6.20)[16]. These programmed spaces are mostly on the same topological distance to the entrance (4 steps) and even though they don't allow through movement, the fact that many different programmes link to a circulation system made of a few spaces might generate a very diverse convergence of paths in the building. This characteristic is enhanced by the fact that these spaces may function as passages between adjacent streets, bringing movement of visitors inside the building. The most integrated convex space is found in this circulation system (Figure 6.43). From this space, almost all other spaces of the library can be seen: the children's library is the only programmed space not visually accessible. In fact, the relation between the area of the isovist from the most integrated space (Figure 6.43a, in yellow) in relation to the total area of the building is of 73%, being the highest rate among the libraries and the only one that is above half the building's floor area. These three characteristics of the circulation system together – the direct link to programmed [a] type spaces, the intersection of different types of paths, and the strong visual awareness of these first two characteristics – make this library function less like a building and more like an urban space (or an urban gallery, perhaps). The urban nature of this library is strengthen by the choice of flooring material that creates the impression that one is still walking in the pavement of the adjacent streets

15 I identified four in the previous chapter: a first characteristic is that they have almost no walls (apart from the ones that form the volume of the auditorium and workshops), a fact that opens visibility of the whole city and the valley, and conversely opens them to be visible from the outside and the floors below (Figure 5.07d). In fact, a second characteristic is the mismatching of floor slabs (figure 5.07d), which is a recurrent characteristic in this library and which creates many vantage points in the floors that allow seeing floors above or below. Thirdly, the celling of the first floor, which is the roof of the whole complex, is a high one and works more like a pergola than ceiling (as it allows daylight to penetrate the complex). Fourthly, the flooring material is a continuation of the same one used in the pavement of the streets, which gives the impression that visitors are still in the urban realm.

16 The only exception is one of the cafes (space 3), which is a [c]-type space.

(Figure 6.43b). Even though this circulation system has no furniture, the fact that there are many electric plugs implies that visitors may use these spaces with electronic equipment – such as mobiles, tablets or computers (Figure 6.43b) – for long time periods. It is interesting to note that, in order to use these plugs, visitors may have to sit on the floor (a fact that may have an impact in generating an informal atmosphere to this urban passage). Apart from these spaces, all the other spaces of the building strongly define a particular activity: for example, while in PB La Quintana, the space for Local Studies was a [d]-type space, with a furniture layout that imply that it may function for different movement and occupation patterns, in PB Belén, this same programme is an [a]-type space, furnished for concentrated study only.

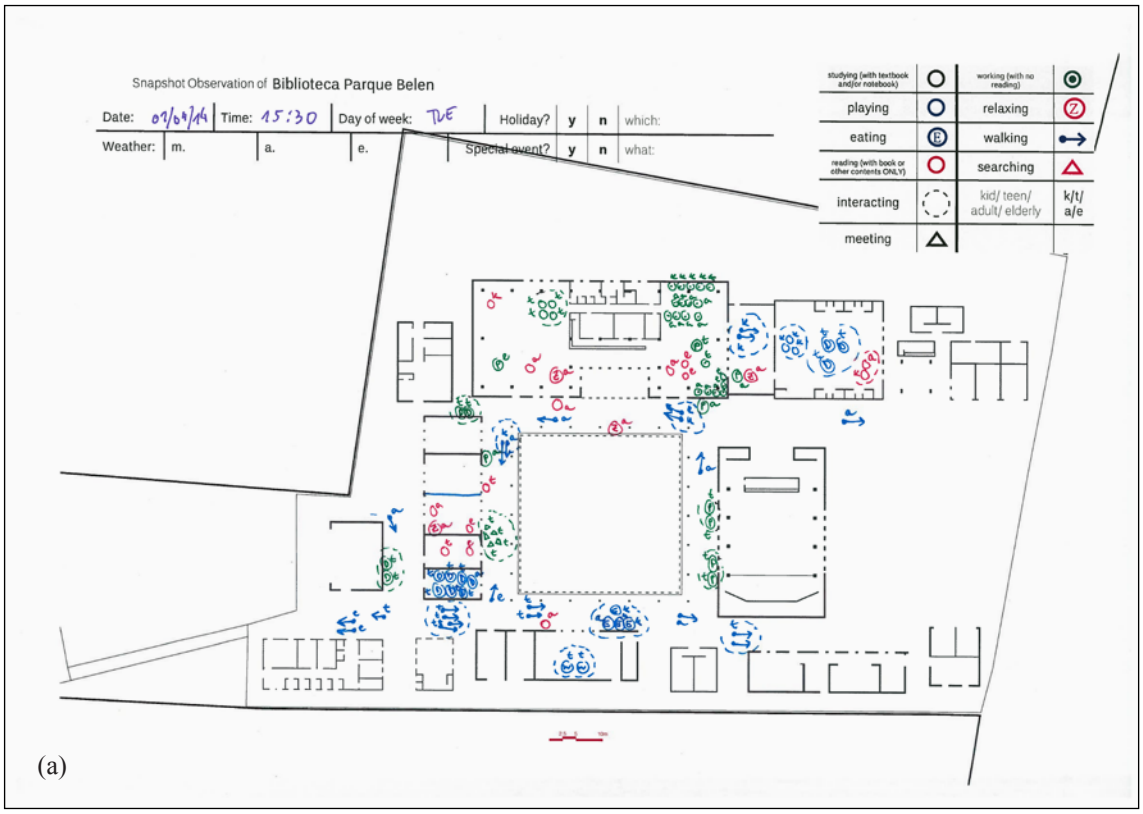
Parque-Biblioteca Fernando Botero

PB Fernando Botero' spatial structure can be simplified into two separate sections: a first one that branches from space 1; and a second one that starts at space 16 (Figure 6.22). While the first section corresponds with the Library-Parks' purpose of functioning as an 'interactive learning facility', the second section accommodates programmes that correspond with the purpose of functioning as a 'formal learning facility'. Most rings of circulation in programmed spaces are trivial, covering the same programmatic areas (comparison between Figures 6.22 and 6.24). Moving and occupying space are strongly associated with a programmatic role, since visitors who do not go to a specific programme are not likely to cross its spaces and circulation accesses. These two sections are linked by a group of spaces that forms the entrance hall to this library, and which constitutes the integration core of the building (Figures 6.34, 6.35 and 6.44). In this integration core, furniture suggests a mix of uses, from relaxed forms of occupation to activities related to study and work. In fact, this is the only building whose integration core is programmed: this space is a combination of 'sala mi barrio' (a space for Local Studies), information desk and main entrance. Therefore, as this space is central in the building, there are great chances that potential visitors participate with (or at least become aware of) the activities of these particular programmes. In summary, one sees that spatial configuration and programmatic distribution in PB Fernando Botero imply that occupation and movement will follow two main patterns: on one hand, the integration core mixes uses and paths

between different parts of the building, offering space for unprogrammed activities and interactions; on the other hand, each of the two programmatic sections constrain occupation and movement to follow the predefined programmatic definition of those spaces.

Chapter 7
Analyses of space and social practices

The organisers of the Library-Park Project state that these buildings main goal is to produce social change in their surroundings through the arrangement of spaces and programmes that can generate a new sense of community and citizenship *through informal co-inhabitation and interaction* (Montoya 2014; Empresa de Desarollo Urbano 2014). In other words, great importance is given to the kinds of use in the libraries, and to how they construct collective patterns in space. This chapter looks at the five Library-Parks presented in chapter 5 in order to address the research questions: *how are the libraries used? How the spatial structure and programmatic distribution relate to the patterns of use?* More specifically, it looks at the empirical data collected during fieldwork in each Library-Park, analysing the distribution of activities and the formation of collective patterns based on these distributions. The previous chapter described how different from each other the Library-Parks are in terms of their arrangements of spaces and programmes. This chapter builds from the previous one, addressing how the described spatial-programmatic conditions affect real use patterns. In addition, considering the important distinction brought by the literature revised in chapter 2 between two main kinds of users of the libraries – visitors and staff members –, this chapter addresses the spatial interrelation between these two. In particular, it addresses the potential practice of social control embedded in the mere presence of staff among visitors, interrogating *how the presence of staff members observing activities affects visitors' co-presence and interaction*. The intention is not to criticise the librarians' role. A librarian assists in one's search for information, assuming a significant pedagogical role. It is not suggested that librarians become disciplinary agents, but that in the formation of collectivity based on informal co-presence and interaction – which is the *raison d'être* of these facilities, and which is what I try to capture – librarians and other staff members' distribution in space affects how behaviours may be institutionalised. In other words, in becoming accustomed



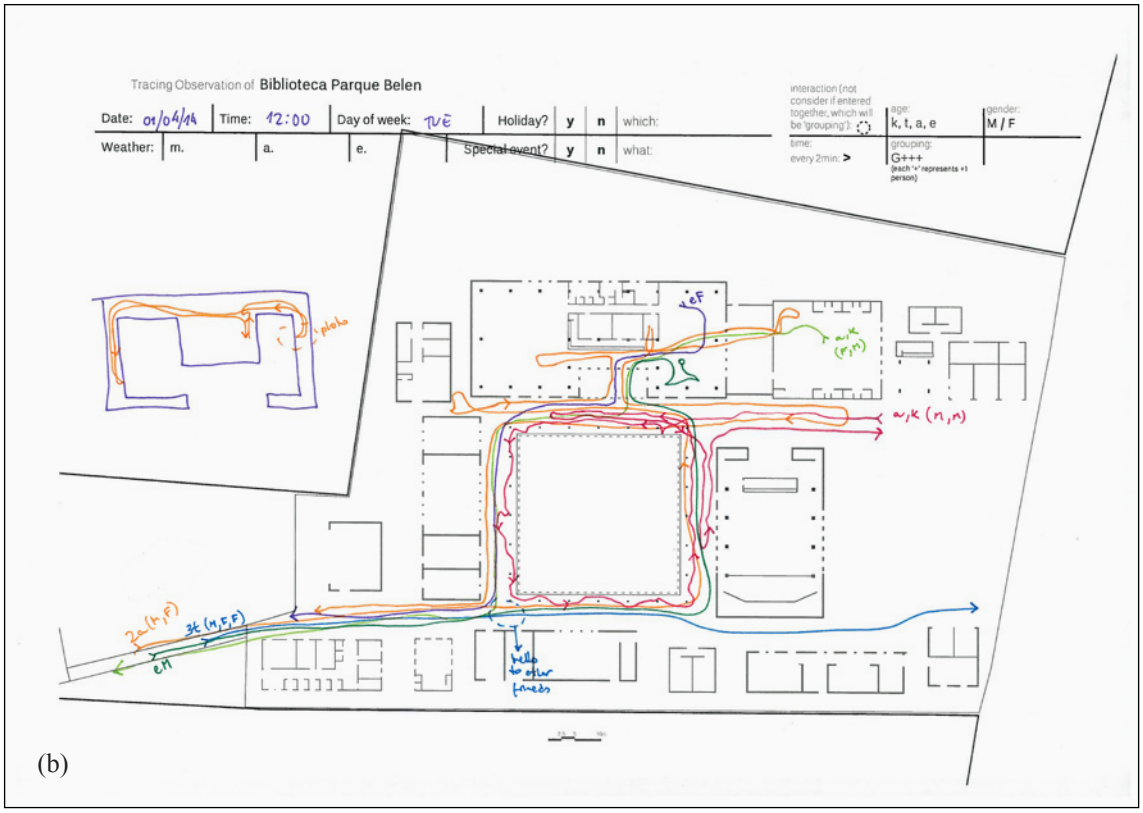


Figure 7.01: Examples of 'snapshot' (a) and 'tracing' (b) observations in one floor of PB Belén.

Figure 7.02: Example of a 'Map of Aggregate Practices' in one floor of PB Belén.

to institutionalised rituals of interaction, communication and occupation in a library, visitors absorb codes of civic interaction and behaviour.

The previous chapter showed that the libraries differ significantly in terms of morphological type and spatial structures. If one considers that different arrangements of spaces and programmes give support to very different forms of occupation and movement (Hillier 1996), than it follows that the Library-Parks might differ significantly in regards to how they 'generate informal co-inhabitation'.

During fieldwork, the actual activities in the spaces of the libraries were mapped through a sequence of 'snapshots', 'gate count' and 'traces' observations (Figure 7.01). All this data was recorded on a single map (for each building), in order to be able to capture the 'aggregate picture' of the social practices of each building (Figure 7.02). These maps are not only representations of phenomena (one cannot see this aggregate level at once when experiencing the buildings), but they also work as tools to capture socio-spatial phenomena. This research calls these tools 'maps of aggregate practices', since they construct representations of how each library forms a field of collective spatial practice and use over time.

7.1. The spatial distribution of activities

The first analysis of this chapter looks at observed activities in the buildings in order to address what patterns of co-presence they form. In order to indicate whether and how each building functions as a place that mixes different categories of users, or if it segregates them into predefined programmed activities, these activities are analysed in terms of their spatial distribution and whether they happen in places with programmatic labels. Through fieldwork observations, the following activities were identified (Table 7.03): reading; studying; working; playing; searching; relaxing; walking; meeting; dating; doing art; using phone or tablet; taking photo; eating; and watching a film or exhibition.

Statistic information regarding the building's occupation patterns could be drawn from these empirical observations, such as: average of visitors per snapshot per building (Table 7.04, R1); average number of visitors per day[1] (Table 7.04, R2) – which can be compared with a similar information that can be found in the Reports on the Library-Parks usage[2], which are published by the System of Public Libraries of Medellín (SBPM) (Sistema de Bibliotecas Públicas de Medellín – Secretaría de Cultura Ciudadana – Alcadía de Medellín 2014) (Table 7.04, R3). These Reports contain information regarding statistics of access to Medellín's libraries' contents (Table 7.04, R4) and computers (Table 7.04, R5), as well as access to the educational activities (Table 7.04, R6 and R7) organised by each Library-Park. They differentiate people by demographic information, providing an interesting tool for comparison of performance between each Library-Park. Although the data in these Reports is very precise – as it is not estimation, but the true total of all visitors' (measurable) information – it lacks any kind of spatial information. This fact emphasises the importance of the data collected from fieldwork observation in this research. This is because it *maps* different forms of use, providing an analysis of their spatial distribution (Figures 7.06 to 7.10), as well as the rates of each kind of observed activity per building (Graph 7.05). Furthermore, the data from fieldwork reveals phenomena that would not be made visible otherwise, which is of the numerous kinds of use that

1 Based on 'gate-count' analysis.

2 Titled "Consolidado de las Bibliotecas pertenecientes al Sistema de Bibliotecas Publicas de Medellín".

Reading	People only with reading material (book, magazine or newspaper)
Studying	People with reading material and notebook or computer
Working	People only with computer
Playing	-
Searching	People searching for a reading material
Relaxing	People without any reading material or apparent action or interation
Walking	-
Meeting	People interacting with others and without reading material or other source of access to content
Dating	Two people interacting with each other as in a romantic date
Doing art	People producing artistic artifacts (objects, scenarios, etc); or participating in any sort of production of knowledge related to experiences with the body (such as dancing, yoga, tai chi, theatre); or related to music (rehearsing, singing or playing instrument). (Note: in the maps it will be noted only "doing")
Using phone or tablet	- (Note: in the maps it will be noted only "phone")
Taking photo	- (Note: in the maps it will be noted only "photo")
Eating	-
Watching a film or exhibition	- (Note: in the maps it will be noted only "watching")

Table 7.03: Activities observed from empirical studies.

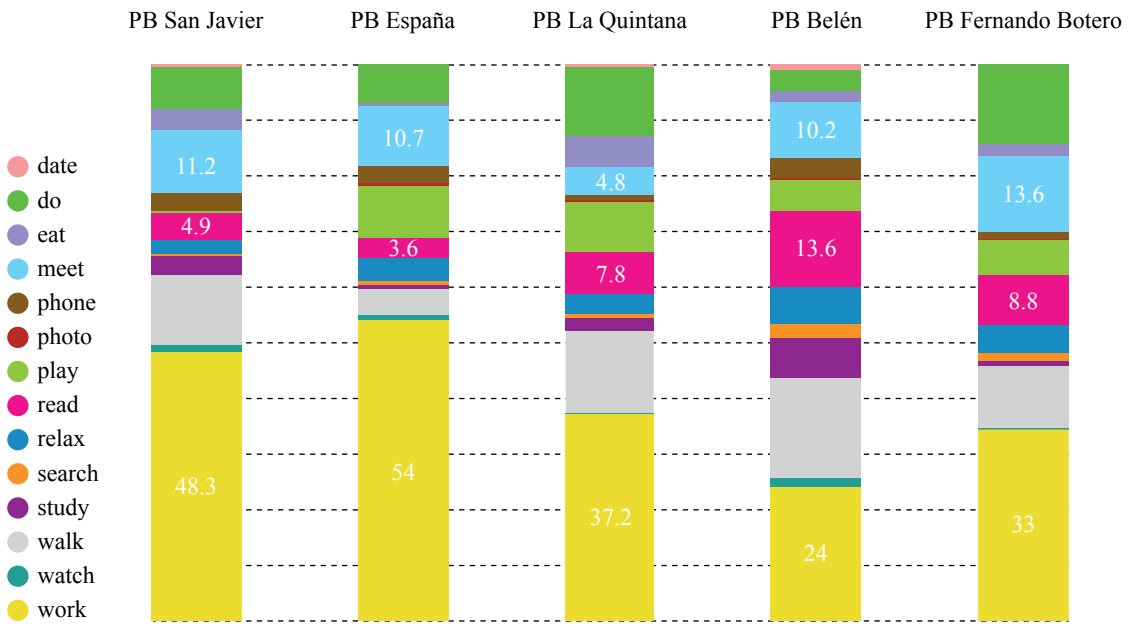
are not related to educational content organised by the library, and which were not considered in the SBPM Reports. In other words, it exposes the variety of ways in which the Library-Parks function as an extension of public urban space, regardless of any education content.

Nonetheless, it is worth comparing the SBPM Report data with the one produced by empirical observations. For example, when comparing the data observed in the average number of visitors per day in the libraries (Table 7.04, Row 2) with the data from the SBPM Report (Table 7.04, Row 3) it became evident that the fieldwork has limitations as to capturing the real number of visitors based on a few visits to the libraries. PB España's case is the one where the 'real' number informed by the SBPM Reports is significantly different from the one captured in fieldwork: 1310 per day (SBPM) against 343.2 per day (fieldwork). In other words, the number estimated from fieldwork is only 26% of the real one. PB San Javier is a second case where the average number of visitors captured from observation was significantly different

		PB San Javier	PB España	PB La Quintana	PB Belén	PB Fernando Botero
						
R1	Average Number of people per snapshot	82.41	72.25	74	91.5	71
R2	Average Number of visitors per hour and per day based on gate count observation	79.2 / hour 871.2 / day (11 hours)	31.2 / hour 343.2 / day (11 hours)	91.2 / hour 1003.2 / day (11 hours) (Considering "only library": 38.4/h and 422.4/day)*	194 / hour 2138.4 / day (11 hours)	146.4 / hour 1610.4 / day (11 hours) (Considering "only library": 67.2/h and 739.2/day)*
R3	Average Number of visitors per day (source: SBPM 2014) (Average of 2013)	1286 / day of which 22% kids 36% teenagers 43% adults and senior citizens	1310 / day of which 25% kids 30% teenagers 45% adults and senior citizens	558 / day of which 26% kids 37% teenagers 37% adults and senior citizens	2095 / day of which 35% kids 25% teenagers 40% adults and senior citizens	887 / day of which 33% kids 38% teenagers 29% adults and senior citizens
R4	Consultation and Lending of Collection per day (source: SBPM 2014) (Average of 2013)	100 / day (lending) 167 / day (consulting) (if 1 person per consultation or lending event, then 20% of visitors consult or borrow.)	113 / day (lending) 216 / day (consulting) (if 1 person per consultation or lending event, then 25% of visitors consult or borrow.)	126 / day (lending) 92 / day (consulting) (if 1 person per consultation or lending event, then 57% of visitors consult or borrow.)	151 / day (lending) 159 / day (consulting) (if 1 person per consultation or lending event, then 15% of visitors consult or borrow.)	78 / day (lending) 87 / day (consulting) (if 1 person per consultation or lending event, then 18% of visitors consult or borrow.)
R5	Sessions of computer per day (as each person is allowed only one session per day, this indicates how many people used in one day) (source: SBPM 2014) (Average of 2013)	405 / day (31% of all visitors) of which: 33% kids 46% teenagers 21% adults and senior citizens	532 / day (40% of all visitors) of which: 27% kids 43% teenagers 30% adults and senior citizens	419 / day (75% of all visitors) of which: 23% kids 59% teenagers 18% adults and senior citizens	264 / day (12% of all visitors) of which: 19% kids 27% teenagers 54% adults and senior citizens	173 / day (20% of all visitors) of which: 38% kids 47% teenagers 15% adults and senior citizens
R6	Number of rooms booked per day (source: SBPM 2014) (Average of 2013)	10 / day	4 / day	7 / day	10 / day	8 / day
R7	Programmed Activities per day (for education, culture and community) (source: SBPM 2014) (Average of 2013)	5 / day	8 / day	4 / day	5 / day	7 / day

* This concerns the threshold that has barriers to control the lending of books and other materials from the libraries' collections.

Table 7.04: General distributions and rates of visitors' use patterns in each Library-Park.



Graph 7.05: Rates of each kind of activity per building.

from the one shown by the SBPM Report: the fieldwork captured an average of 871.2 visitors per day, and the Report informs that the actual number is of 1286 per day. In other words, the number estimated from fieldwork is 67% of the real one. In two cases (PB La Quintana and PB Fernando Botero) the number of visitors observed crossing the 'actual entrance' to the library is very similar to the one informed by the SBPM reports. In these libraries, if one considers the entrance to the whole complex (and not only the 'actual entrance' to the libraries), the number of visitors is significantly higher (more than the double observed crossing the 'actual entrance' in each case). This might indicate that the SBPM Report captures only movement of visitors that enter the 'actual entrances'. PB Belén was the only library where the estimate number of visitors from fieldwork is very similar to the one informed by the SBPM Report (2138.4 estimated from fieldwork, and 2095 informed by the SBPM Report). In summary, the lack of consistent correlation between observed phenomena and information brought by the SBPM Report indicates limitations as to the general picture of each library constructed from the fieldwork carried out in this research. This does not mean that the work carried out lacks reality. On the contrary, it shows it probably captures a different spectrum of reality. In other words, these differences indicate that the data in this research cannot be used to estimate how the libraries function throughout the year. Conversely, these differences also indicate that

the work carried out captures more detailed phenomena than that presented by the SBPM Report. In short, the fieldwork should not be seen as a substitute for the data provided by the SBPM Report, but as a complementary source of information on the use and functioning of these libraries.

In addition, although studies show (e.g. Levy 2013) that the new projects of Medellín are used differently considering gender and age groups, the SBPM Reports do not provide information as to how different gender groups use the libraries. Interestingly, however, the fieldwork observation did not identify any perceivable or measurable pattern of use concerning these groups. Considering all the history of violence (specially against women and children) in the comunas, it was interesting to see that the libraries could serve as a space that mix gender and age groups.

The various kinds of use observed in fieldwork may be grouped together according to their relationship with the Library-Parks' main roles, namely to work as (i) formal learning facilities; (ii) interactive learning facilities and (iii) extension of public space (Graph 7.11 and Figures 7.12 to 7.16). In other words, some of the observed activities may be considered as related to the building functioning as a place to access formal educational media (i.e. reading, studying and searching for books are activities that refer to accessing books and other materials in the libraries' collections). These activities are represented with Magenta colour in Graph 7.11 and Figures 7.12 to 7.16. A second group of activities refers to the libraries functioning as places to learn from interactive media (i.e. doing art, visiting exhibitions, accessing internet and computers are activities that relate to the educational aims of the Project of Library-Parks) (Yellow in Graph 7.11 and Figures 7.12 to 7.16). Finally, a third group of activities refer to these buildings functioning as extension of public urban space (i.e. relaxing, dating, eating, playing, etc. are activities that are not related to educational purposes) (Blue in Graph 7.11 and Figures 7.12 to 7.16)[3].

These groups concentrate and overlay differently in each building. However, there are some general aspects that can be seen across all cases:

1) A general finding that is not surprising is that, in all buildings, activities related to the libraries functioning as formal learning facilities concentrate in the spaces programmed as lending libraries and reading rooms (Figures 7.12 to 7.16,

3 The next section (7.2) analyses patterns observed movement exclusively, this section (7.1) focuses on patterns of observed static occupation.

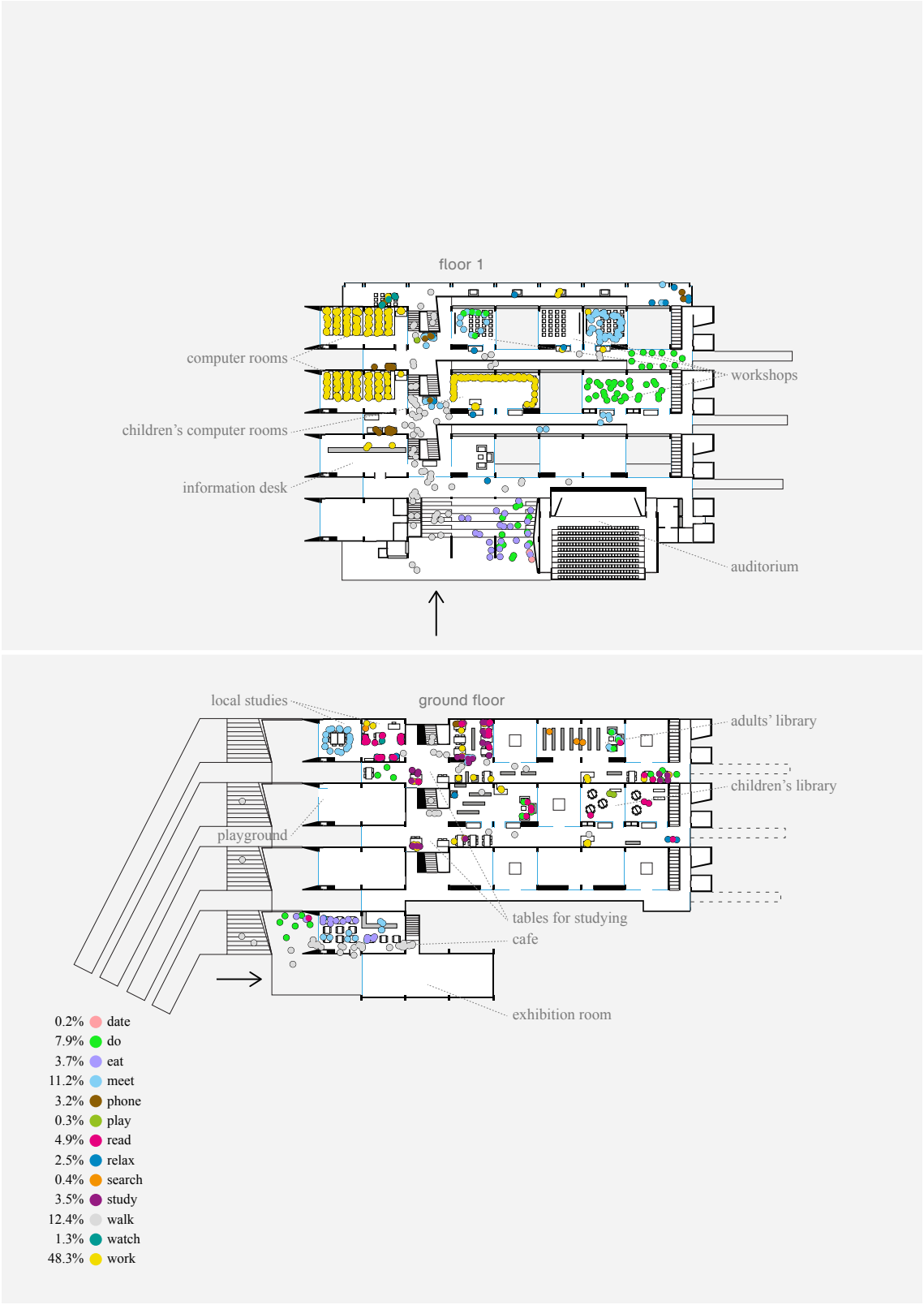


Figure 7.06

Captions of figures 7.06 to 7.10 in page 265.

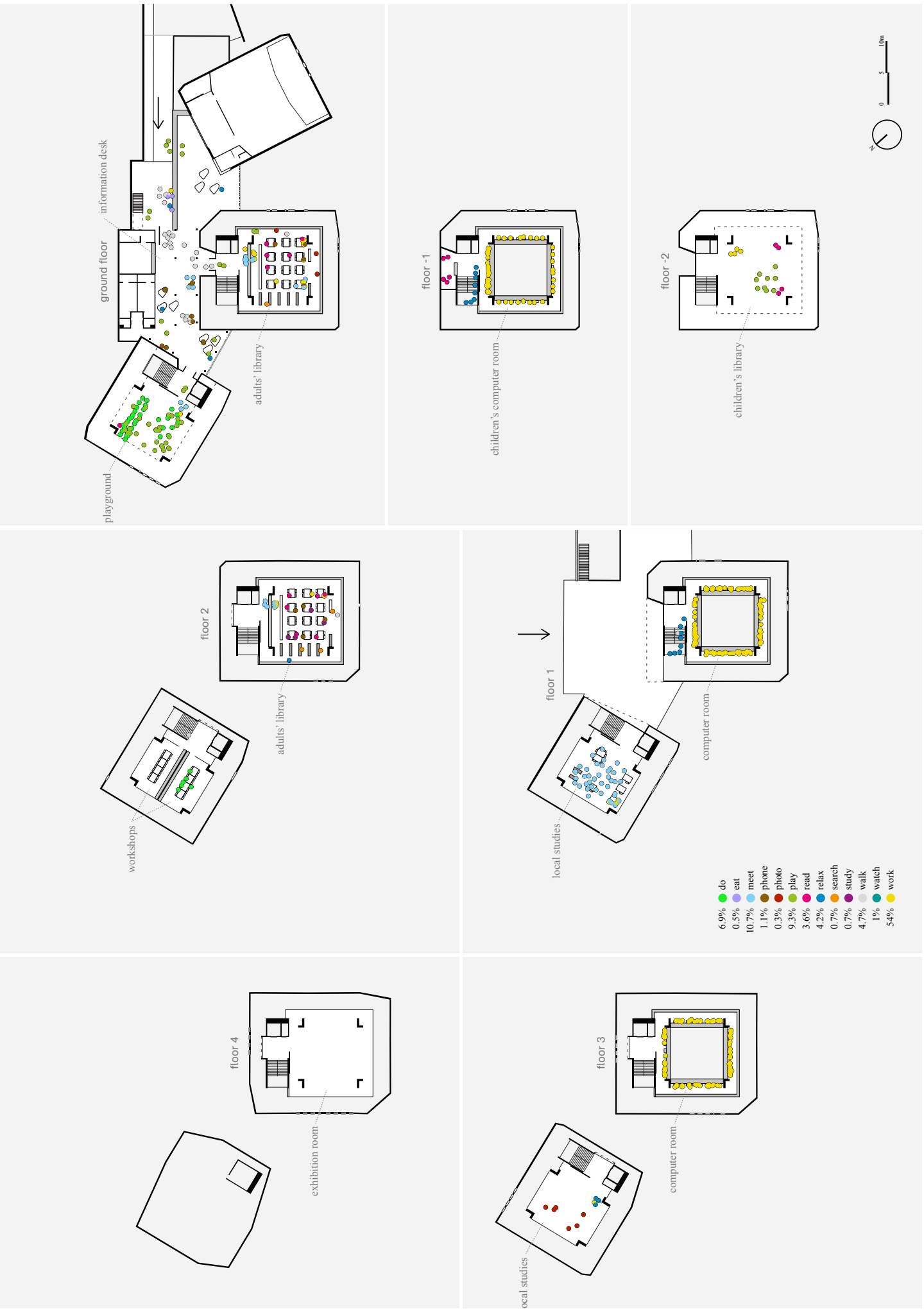

ground floor
information desk
adults' library
playground
floor -1
children's computer room
floor -2
children's library
0
5
10m
floor 2
adults' library
workshops
floor 1
computer room
local studies
6.9% do
0.5% eat
10.7% meet
1.1% phone
0.3% photo
9.3% play
3.6% read
4.2% relax
0.7% search
0.7% study
4.7% walk
1% watch
54% work
floor 4
exhibition room
floor 3
computer room
ocal studies

Figure 7.07

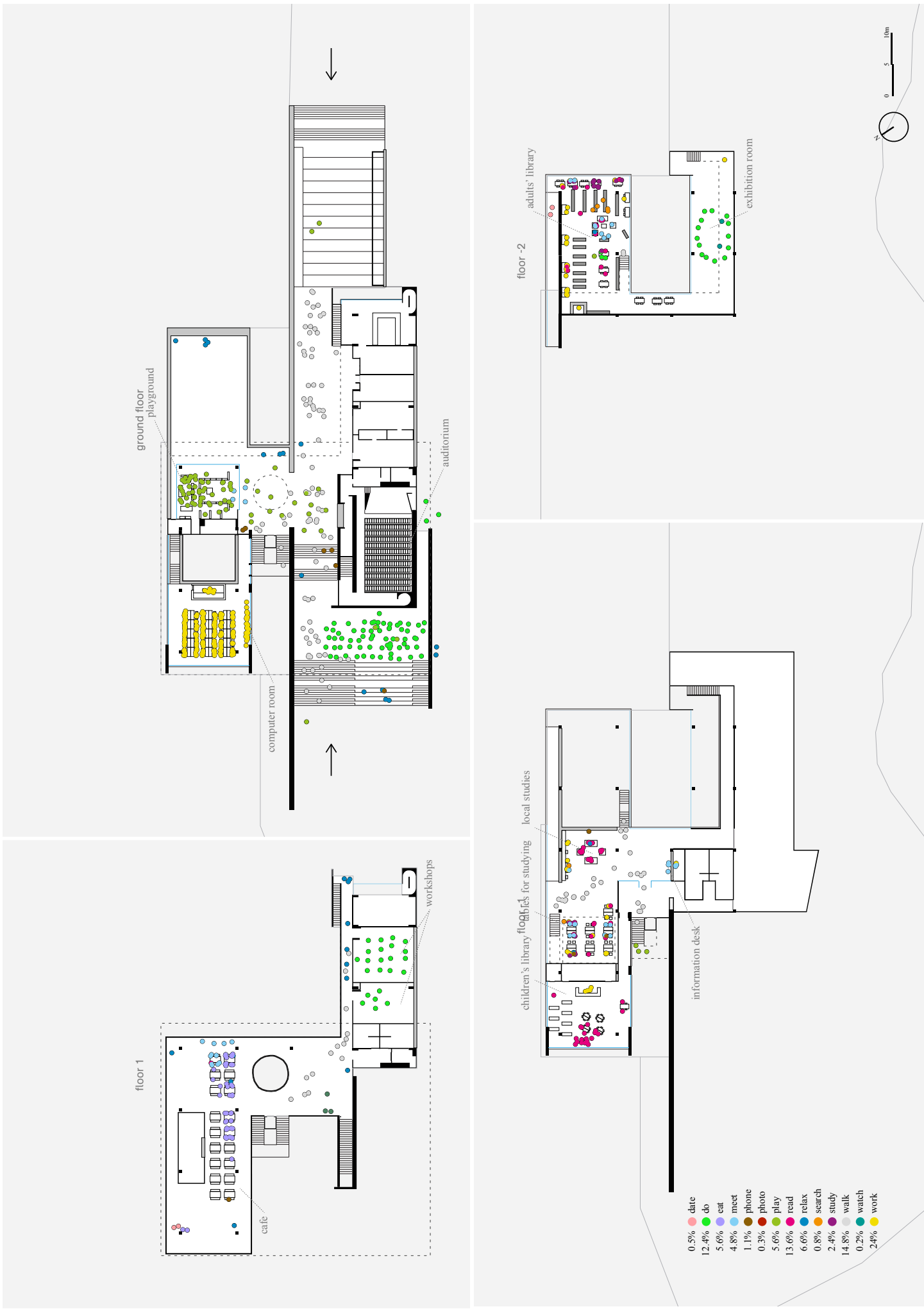

floor -2
adults' library
exhibition room
ground floor
playground
auditorium
computer room
floor 1
workshops
cafe
children's library
tables for studying
local studies
information desk
0.5% date
12.4% do
5.6% eat
4.8% meet
1.1% phone
0.3% photo
5.6% play
13.6% read
6.6% relax
0.8% search
2.4% study
14.8% walk
0.2% watch
2.4% work

Figure 7.08


cafe
children's library
information desk
tables for studying
auditorium
exhibition room
workshops
cafe
ground floor
adults' library
playground
local studies
computer room
mezzanine
date 0.9%
do 3.8%
eat 2%
meet 10.2%
phone 3.3%
photo 0.3%
play 5.6%
read 13.6%
relax 6.6%
search 2.5%
study 7.3%
walk 17.7%
watch 1.8%
work 24%

Figure 7.09

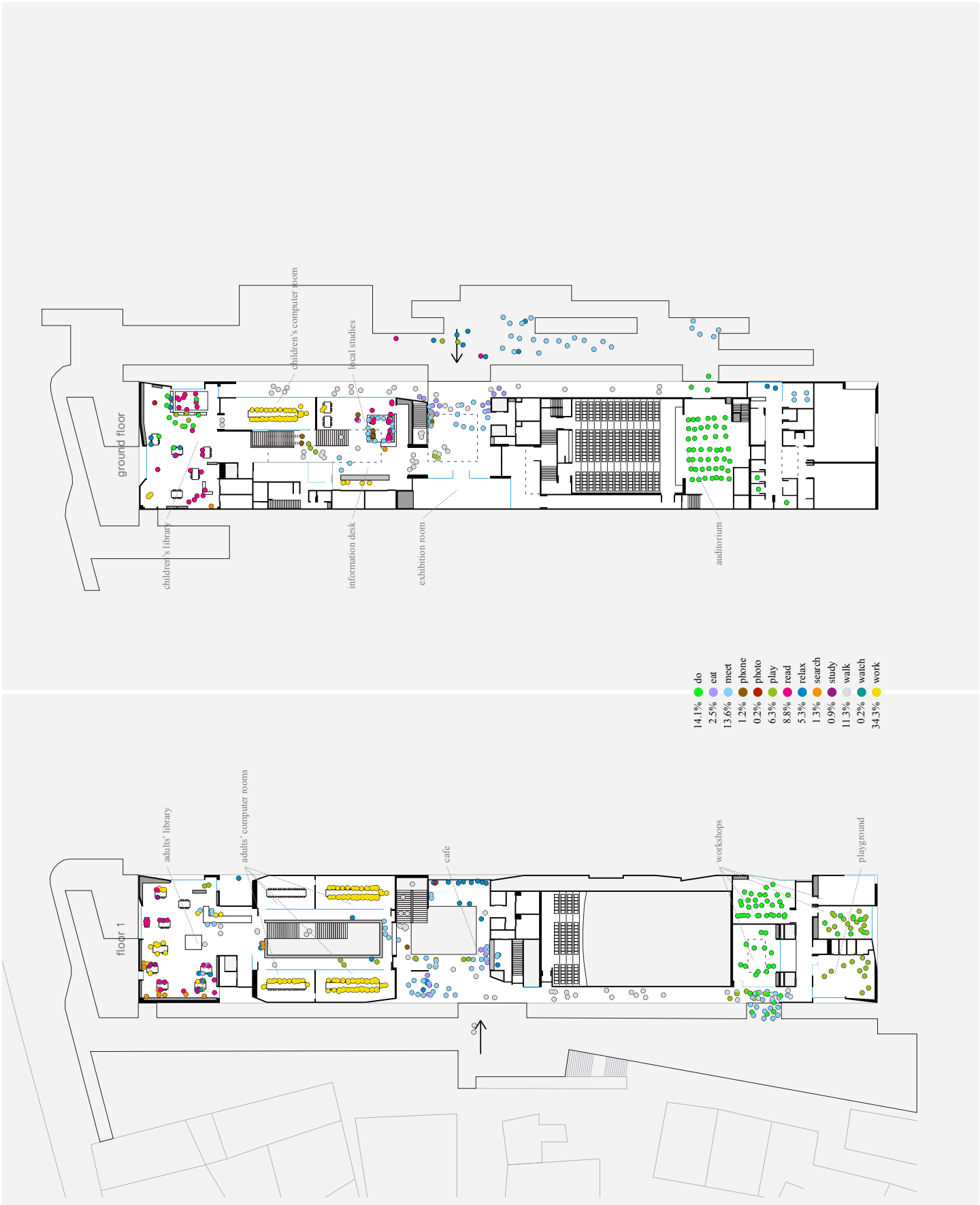

ground floor
children's computer room
local studies
children's library
information desk
exhibition room
auditorium
floor 1
adults' library
adults' computer rooms
café
workshops
playground
do 14.1%
eat 2.5%
meet 13.6%
phone 1.2%
photo 0.2%
play 6.3%
read 8.8%
relax 5.3%
search 1.3%
study 0.9%
walk 11.3%
watch 0.2%
work 34.3%

Figure 7.10

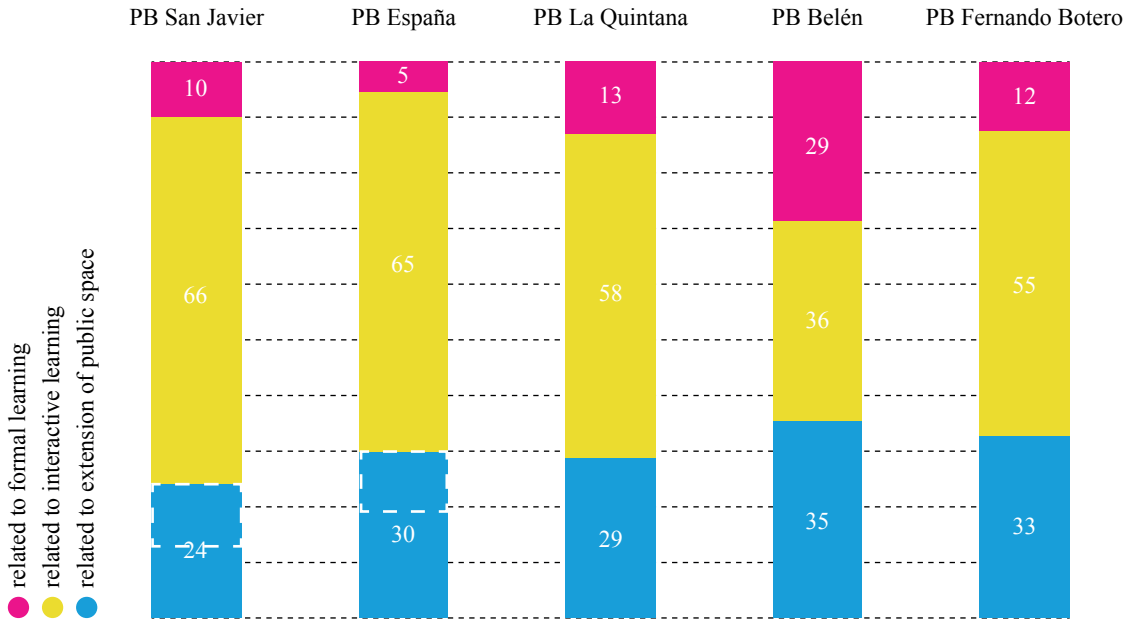
Figure 7.06: Map of Aggregate Practices of PB San Javier. Colours indicate different types of activities.

Figure 7.07: Map of Aggregate Practices of PB España. Colours indicate different types of activities.

Figure 7.08: Map of Aggregate Practices of PB La Quintana. Colours indicate different types of activities.

Figure 7.09: Map of Aggregate Practices of PB Belén. Colours indicate different types of activities.

Figure 7.10: Map of Aggregate Practices of PB Fernando Botero. Colours indicate different types of activities.



Graph 7.11: Rates of each kind of activity per building. These rates are calculated from the 'map of aggregate practices' of each building. First, each activity is given a percentage from the total of all activities (observed in all snapshots, for all days). Then, they are grouped according to the main purposes of the Project of Library-Parks.

magenta). However, it should be noted that the lending libraries differ significantly in terms of their spatial characteristics[4]. In particular, one may see that in PB San Javier and PB La Quintana these programmes are part of systems of spaces that form rings ([c] and [d] topological types), whereas in the other libraries they function as destination spaces ([a] and [b] topological types). This means that people are more likely to cross the spaces where people read and study in PB San Javier and PB La Quintana than in the other buildings. In fact, in these two libraries this aspect is emphasised by the fact that one of the reading spaces lies one step from the integration core of the buildings (Figures 6.27 and 6.29 in previous chapter; in PB San Javier, space 53; in PB La Quintana, space 24).

2) In all buildings, activities related to the libraries functioning as interactive learning facilities concentrate in the spaces programmed as workshops and computer rooms (Figures 7.12 to 7.16, yellow). They also happen in the reading rooms. Again, it should be noted that these programmes differ in terms of their spatial characteristics, when the Library-Parks are compared. In particular, PB La Quintana stands as a

4 (as analysed in the previous chapter)

singular case, having its workshops and computer rooms segregated from the other programmes. This would imply that activities related to interactive learning would not be co-present with other kinds of use. However, this is not the case in PB La Quintana, as it is the only library where activities related to interactive education are concentrated in unprogrammed areas (such as in the open theatre in the ground floor). In particular, it is noteworthy that many of these areas are used for practice of performance classes.

3) Activities related to the libraries functioning as an extension of public space (Figures 7.12 to 7.16, blue) happen in almost all spaces of all buildings, with some local concentrations related to the nature of the activity (playing and meeting are examples of activities that often gather a significant number of people in a small location). Another characteristic shared by most libraries is that the integration core is mostly used by these kinds of activities only. Among these cases, PB Belén situation is particularly interesting: this integration core is one topological step away from almost all of the other programmes. In other words, one step before experiencing co-presence of the educational kind, a visitor is exposed to co-presence and activities that are similar to those found in public urban spaces.

4) When observing the rates[5] of each of these kinds of activities (Graph 7.11) it is clear that, apart from PB Belén, all the buildings share a similar proportion: 10% formal learning, 60% interactive learning and 30% uses related to public space. PB Belén has a significantly higher rate of activities related to formal learning than the other ones, being the only building where each of the kinds of activities has a similar rate (around 33%). This becomes more evident when looking to the rates of each different activity per building (Graph 7.05): PB Belén has the highest rate of readers and the lowest rate of computer users (labelled 'work' in Graph 7.05). In fact, PB Belén's rate of computer users is less than half the rate found in PB San Javier and PB España. In the latters, half of the visitors go to use computers, a fact that contributes for these two buildings to be ones with the highest rates of use of the interactive kind (Graph 7.11, 65% and 66% respectively).

5) Finally, the activity 'to meet' is another significant one to be analysed. This concerns people meeting without any educational material and therefore it was

5 These rates are calculated from the 'map of aggregate practices' of each building. First, each activity is given a percentage from the total of all activities (observed in all snapshots, for all days). Then, they are grouped according to the main purposes of the Project of Library-Parks.

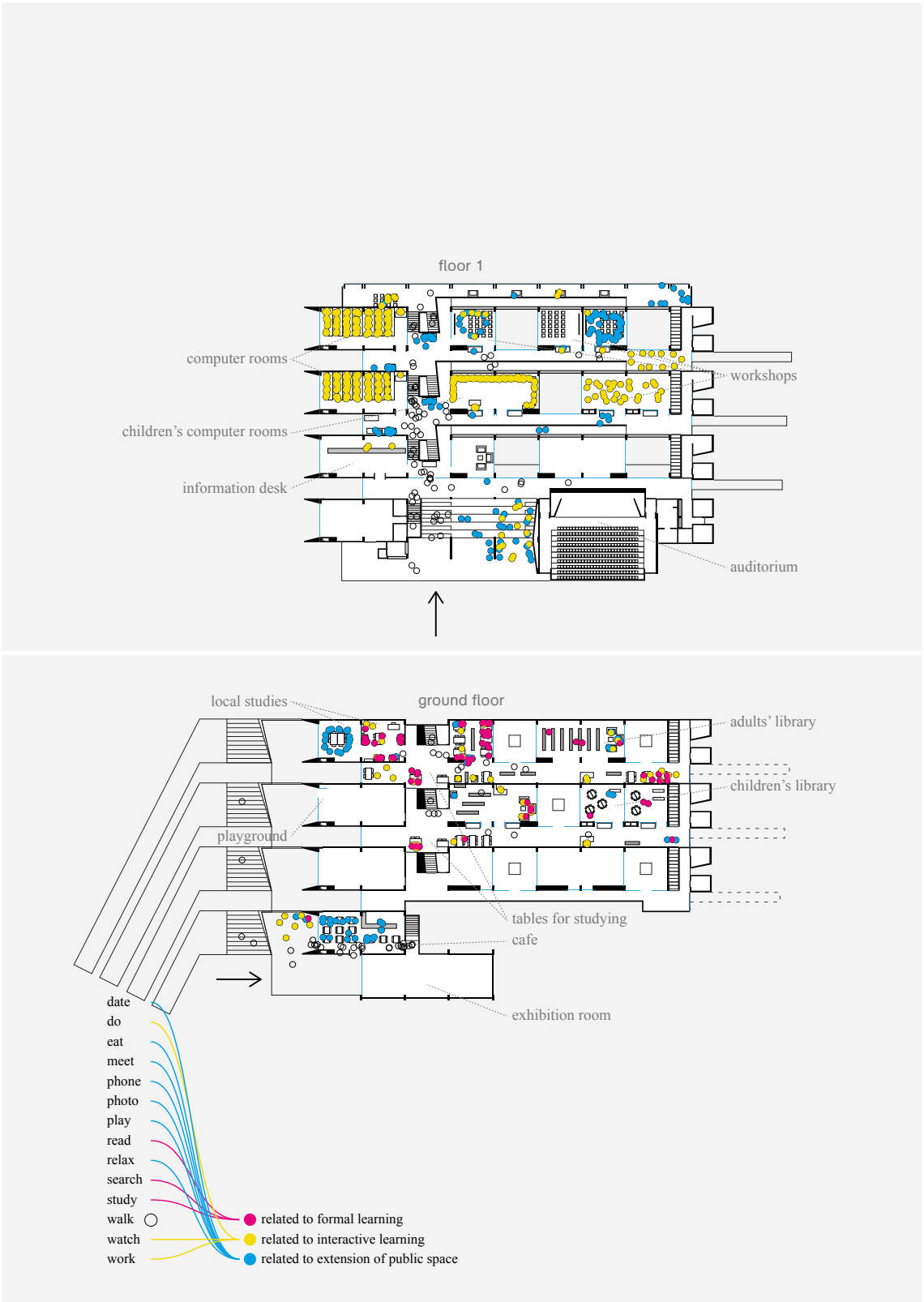


Figure 7.12

Captions of figures 7.12 to 7.16 in page 273.

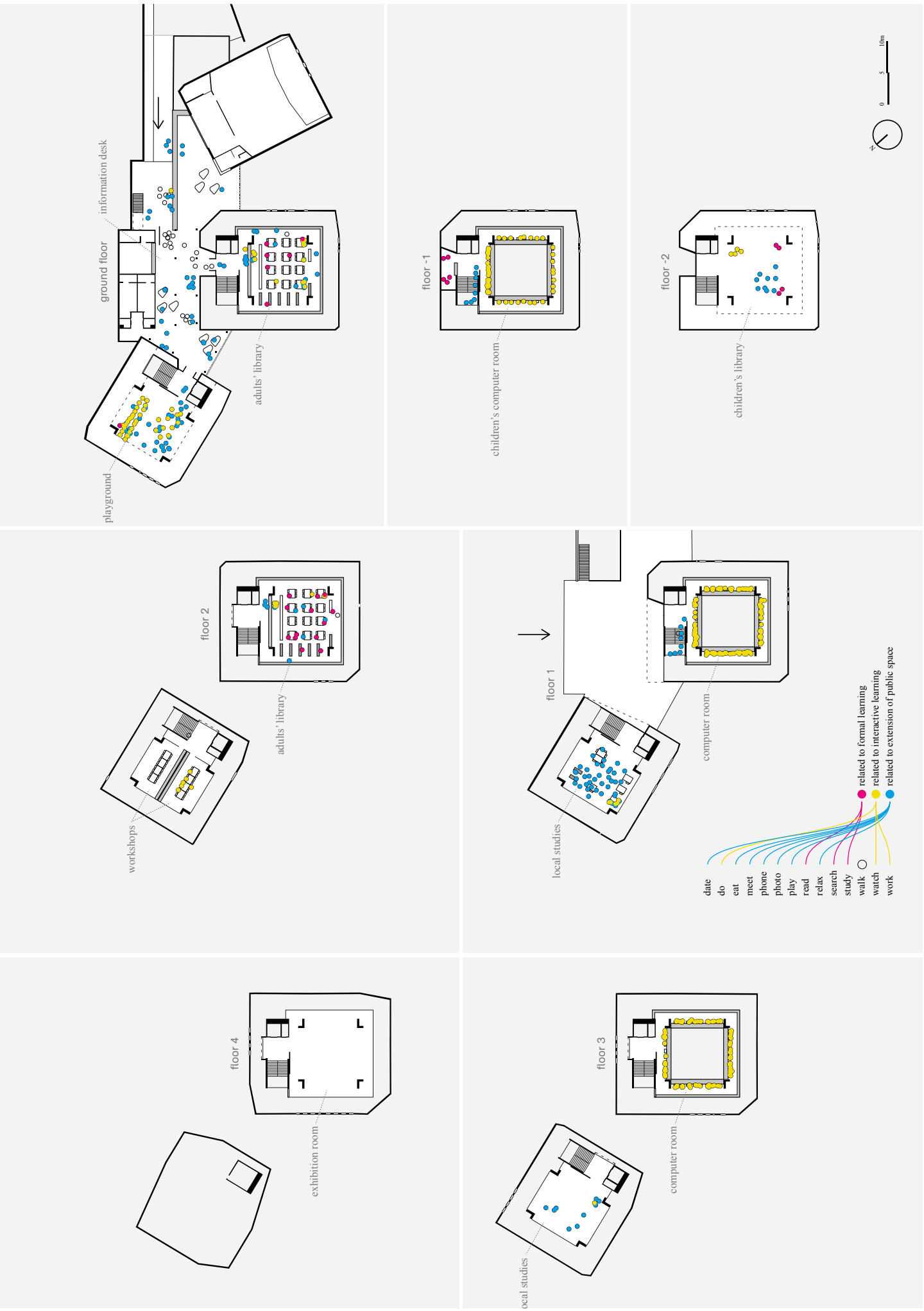

ground floor
information desk
adults' library
playground
floor -1
children's computer room
floor -2
children's library
0
5
10m
floor 2
adults' library
workshops
floor 1
computer room
local studies
related to formal learning
related to interactive learning
related to extension of public space
date
do
eat
meet
phone
photo
play
read
relax
search
study
walk
watch
work
floor 4
exhibition room
floor 3
computer room
local studies

Figure 7.13

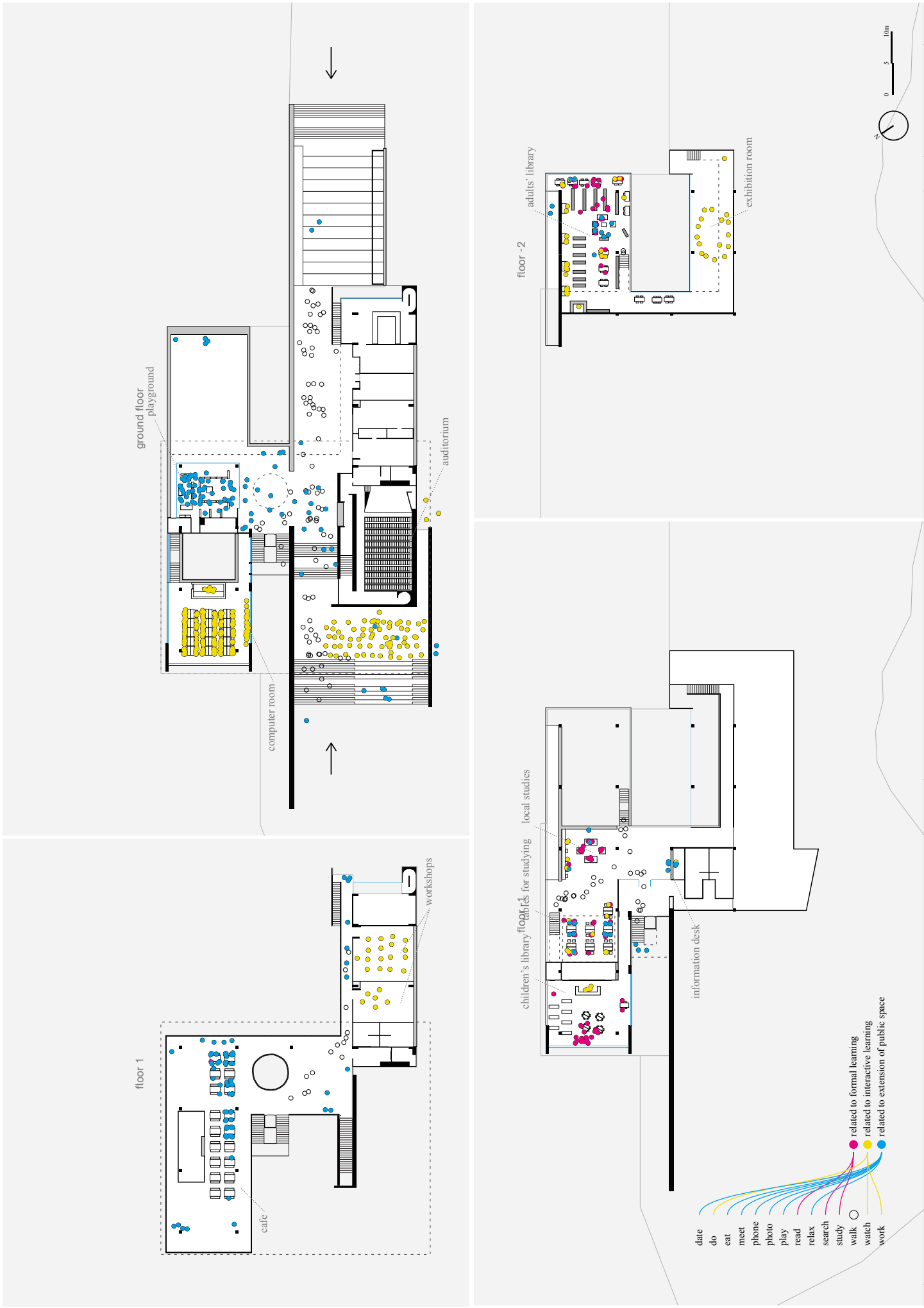

ground floor
playground
computer room
auditorium
floor -2
adults' library
exhibition room
floor 1
children's library
tables for studying
local studies
information desk
floor 1
cafe
workshops
related to formal learning
related to interactive learning
related to extension of public space
date
do
eat
meet
phone
photo
play
read
relax
search
study
walk
watch
work

Figure 7.14


cafe
children's library
tables for studying
information desk
auditorium
exhibition room
workshops
cafe
ground floor
adults' library
playground
local studies
computer room
mezzanine
related to formal learning
related to interactive learning
related to extension of public space
date
do
eat
meet
phone
photo
play
read
relax
search
study
walk
watch
work

Figure 7.15

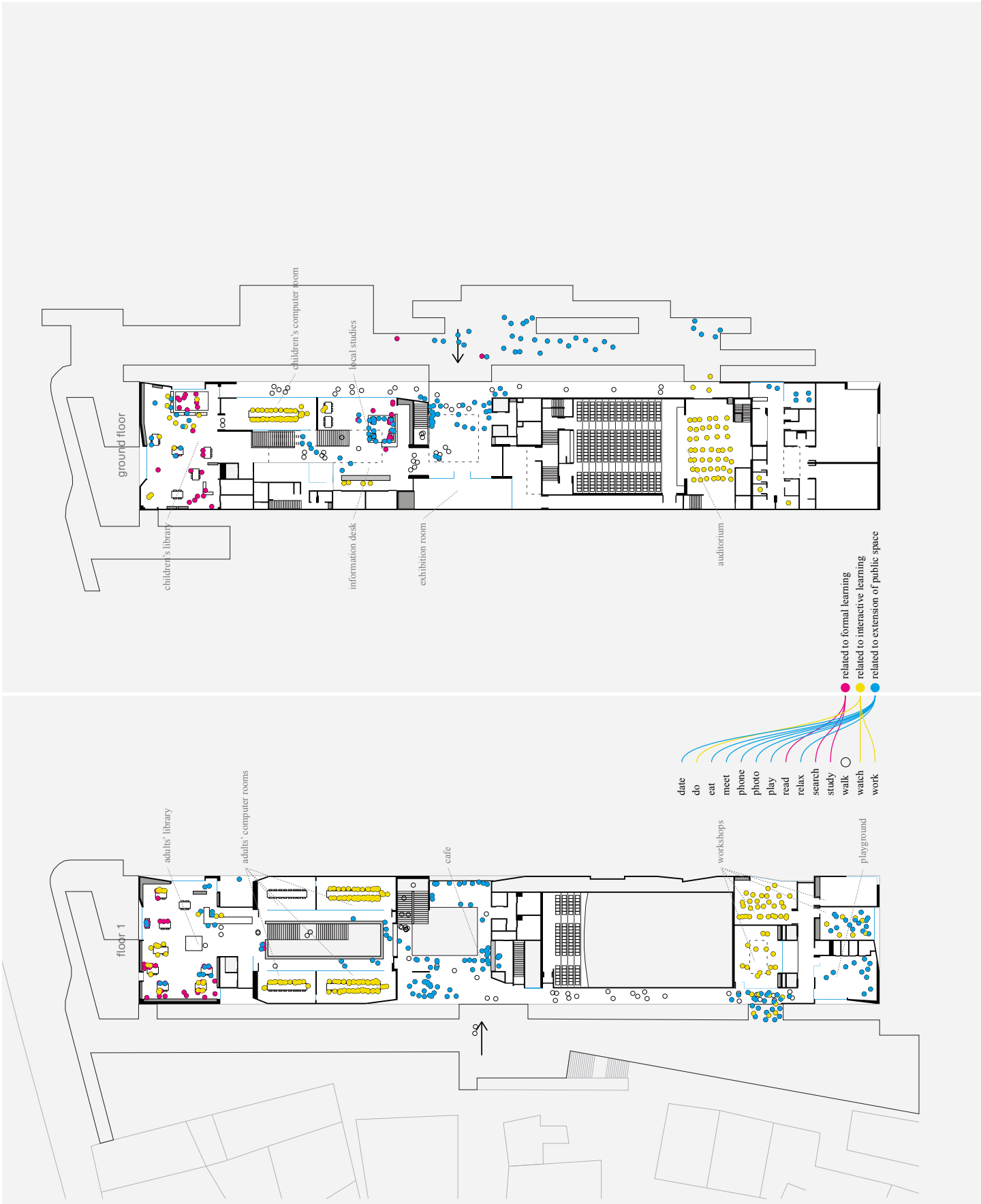

ground floor
children's computer room
local studies
children's library
information desk
exhibition room
auditorium
floor 1
adults' library
adults' computer rooms
cafe
workshops
playground
related to formal learning
related to interactive learning
related to extension of public space
date
do
eat
meet
phone
photo
play
read
relax
search
study
walk
watch
work

Figure 7.16

Figure 7.12: Map of Aggregate Practices of PB San Javier. Colours indicate groups of activities according to the main purposes of the Library-Parks (formal learning, interactive learning, and serve as extension of public space)

Figure 7.13: Map of Aggregate Practices of PB España. Colours indicate groups of activities according to the main purposes of the Library-Parks (formal learning, interactive learning, and serve as extension of public space).

Figure 7.14: Map of Aggregate Practices of PB La Quintana. Colours indicate groups of activities according to the main purposes of the Library-Parks (formal learning, interactive learning, and serve as extension of public space).

Figure 7.15: Map of Aggregate Practices of PB Belén. Colours indicate groups of activities according to the main purposes of the Library-Parks (formal learning, interactive learning, and serve as extension of public space).

Figure 7.16: Map of Aggregate Practices of PB Fernando Botero. Colours indicate groups of activities according to the main purposes of the Library-Parks (formal learning, interactive learning, and serve as extension of public space).

associated with the libraries functioning as extension of public space. However, when analysing where people meet, it is noteworthy that in PB San Javier and PB España this happens almost exclusively in areas programmed as workshops or local studies. In other words, in these two buildings, 'meeting' is associated with programmed interaction organised by the libraries, rather than unprogrammed encounters similar to those one finds in a public space. Therefore, in these two Library-Parks, the rates of 'meeting' should be regarded as part of the group of activities related to the role of 'interactive learning facility'. In this case, their rates of each kind of activity would change significantly (Graph 7.11, white dashed boundaries indicate the increase of interactive learning activities over the ones related to use as a public space), exposing that 3 in every 4 visitors would be engaged in activities related to interactive learning in these two Library-Parks.

It should be highlighted that aspects (1) and (2) – that is, the libraries being used as formal learning facilities (1) and interactive learning facilities (2) – together suggest that the Library-Parks' educational aims are achieved mostly in programmed areas. However, as mentioned above, each Library-Park has a different spatial layout, therefore distributing their programmatic areas differently. As a consequence, space has a profound impact in structuring the experience of these educational activities. Therefore, the mapping that this research presents not only exposes the numerous activities that are not related to educational purposes, but it also assesses how educational activities form distinct groups in space.

Summary of key characteristics of distribution of activities in each library

PB San Javier (Figures 7.06 and 7.12) patterns of co-presence suggest that this Library-Park is mostly used as an interactive learning facility rather than anything else. In other words, visitors go PB San Javier to use computers, attend programmed meetings and engage in artistic courses – which are activities that happen in the rooms programmed for each one of these uses. Activities related to formal learning are very segregated from the ones related to public use, as the former concentrate in the deepest section of the spatial layout, and the latter concentrate at the entrances (comparison between Figures 6.26 and 6.05 of previous chapter; and Figure 7.12). In short, this analysis indicates that PB San Javier spatially separates visitors into two groups with people in each group engaging in similar activity.

PB España (Figures 7.07 and 7.13) is similar to PB San Javier in many aspects, particularly as it is mostly used as an interactive learning facility. Co-presence of different kinds of use happens in the ground floor, especially in the entrance hall. In all other floors, activities are not mixed (Figure 7.13)[6]. In other words, this analysis indicates that PB España also spatially separates visitors into two groups with people in each group engaging in similar activity.

In PB La Quintana (Figures 7.08 and 7.14), uses related to interactive learning and public space happen in all floors. However, it is only in the lower levels that they overlay the same spaces: in both ground floor and floor 1, activities grouped according to these types do not mix. In the lower floors, not only these two types of activity can be found, but also those related to formal learning. In other words, this analysis indicates that PB La Quintana functions as a place that mixes different categories of users in its lower floors, and at the same time it is a place that segregates them in the ground and first floors.

In PB Belén (Figures 7.09 and 7.15), educational activities happen only in programmed spaces, which are connected by a courtyard where one finds almost exclusively activities associated with a use of the buildings as extension of public urban space. These activities happen as well in most rooms programmed for a specific educational activity. As a result, all kinds of activity overlay in most of these programmed spaces. In other words, this analysis indicates that PB Belén functions as a place that mixes different categories of users in programmed spaces, and a place mainly used as an extension of public space in its circulation system.

In PB Fernando Botero (Figures 7.10 and 7.16), different categories of users only mix in its lending libraries (both adults' and children's). In all other spaces, uses tend to be either of the interactive learning type (enclosed in programmed rooms) or of the public space type (in corridors and passages). In short, this analysis indicates that co-awareness based on co-presence in PB Fernando Botero refers to visitors engaging in similar activities.

6 It is noteworthy that even in floors 1 and -1, people observed 'relaxing' are actually queuing for the computer rooms.

7.2. Analysis of observed movement

The previous chapter (section 6.2) discussed the potential mixture of different user groups produced when the path between entering the building and going to a specific programmed area necessarily crosses other programmes. This was addressed using justified graphs in order to capture each programme's topological depth from the entrance and the shortest paths to reach them. Here, this analysis takes a step further, looking at the data from fieldwork where people were observed when entering the buildings, and their paths were mapped (Figures 7.17 to 7.21). Different types of users are assigned based on their paths' destinations. The observation of each path worked as the following: a random person (or random group of people) is chosen to be observed at a distance (he/she/they are not aware they are being observed) at the entrance of the building. Then, the analyst follows such person/group through the building, drawing their path in the plan of the building. The observation only stops when the person/group stops in a place or go out of the building. If in the course of their movement the observed person/group interacts with someone else, than this path is marked as "with interaction". The total number of observed paths per Library-Park reflects the number of people entering the building at the moment of observation. Considering the pilot study experience, and considering the time planned for tracing observations, it was expected to be able to trace around 40 paths per library. In PB San Javier, 40 traces were observed; in PB España, 21 traces were observed; in PB La Quintana, 45 traces were observed; in PB Belén, 41 traces were observed; and in PB Fernando Botero, 36 traces were observed. They result in 183 traces. The difference of number of traces is due to the number of people entering the buildings. In some cases (PB España in particular) there were fewer paths than expected, due to the fact that there were moments without anyone entering the buildings.

The analysis focuses on the aggregate picture of all paths in order to expose overall patterns of movement. This aggregate picture is analysed regarding the spaces that each type of path penetrates, the average distances walked, and the places where different paths converge. This analysis indicates whether and how each building might function as a place that mixes different categories of users, or if it segregates them into predefined programmed activities. Literature on analysing movement of people

in buildings suggests that movement is a key element in the generation of interaction between people (Hillier 1989; Hillier & Penn 1991; Wineman & Serrato 1997; Sailer et al. 2012). These works suggest that the more space has people moving, the greater the chances for people to be aware of each other and interact. In order to assess this general hypothesis in regards to the Library-Parks, this analysis will address whether convergence of paths as well as longer paths result in more interaction. This analysis also assesses whether paths related to people involved in interactions have a specific destination only, or to more than one destination. Each building will be analysed separately and then a summary of the key aspects of each one will be drawn at the end of this section.

Parque-Biblioteca San Javier

In PB San Javier, one sees that movement based on tracing study follows five patterns (or 'types') based on their destination (Figure 7.17). Firstly, one group of visitors (35%) goes straight to the computer room (assigned "computer" in Figure 7.17). Secondly, 35% of visitors cross the main circulation area and search for a place to sit and study (generally with their own book, computer or other material) (assigned "sit" in Figure 7.17). Thirdly, 10% of visitors go to the lending libraries to browse for materials then search for a place to sit (assigned "browse" in Figure 7.17). Fourthly, 7,5% of visitors enter the building and go directly to a programmed activity in a workshop (assigned "classes" in Figure 7.17). Finally, 12,5% of visitors enter the building, explore its spaces and leave without searching for books or sitting to study (assigned "explore" in Figure 7.17).

All these different paths converge only in the sequence of spaces that form the entrance of the building and on the 'circulation spine' (that was mentioned in the previous chapter) (Figure 7.17). Even though this Library-Park has various rings of circulation (space types [c] and [d], Figure 6.06 in previous chapter), only a few visitors in fact use these looping possibilities to access different areas. Instead, most visitors either go straight to their destination or, if they are not going directly to a destination, they turn back to the way they came in and then choose another way. This might be indicative of two different issues: visitors are not aware of the fact that the circulation system form rings; and/or rings of circulation are too long, making

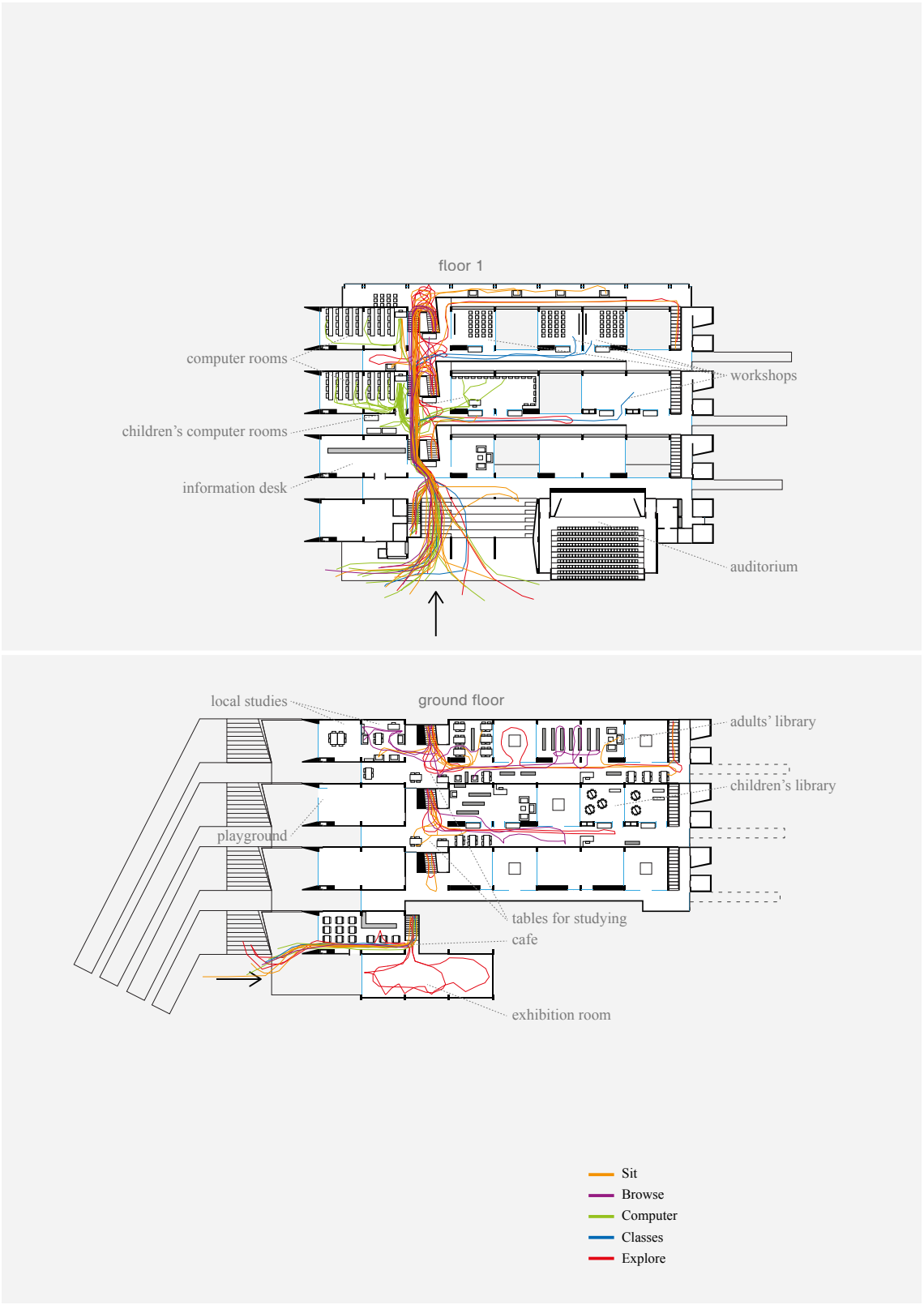


Figure 7.17

Captions of figures 7.17 to 7.21 in page 283.

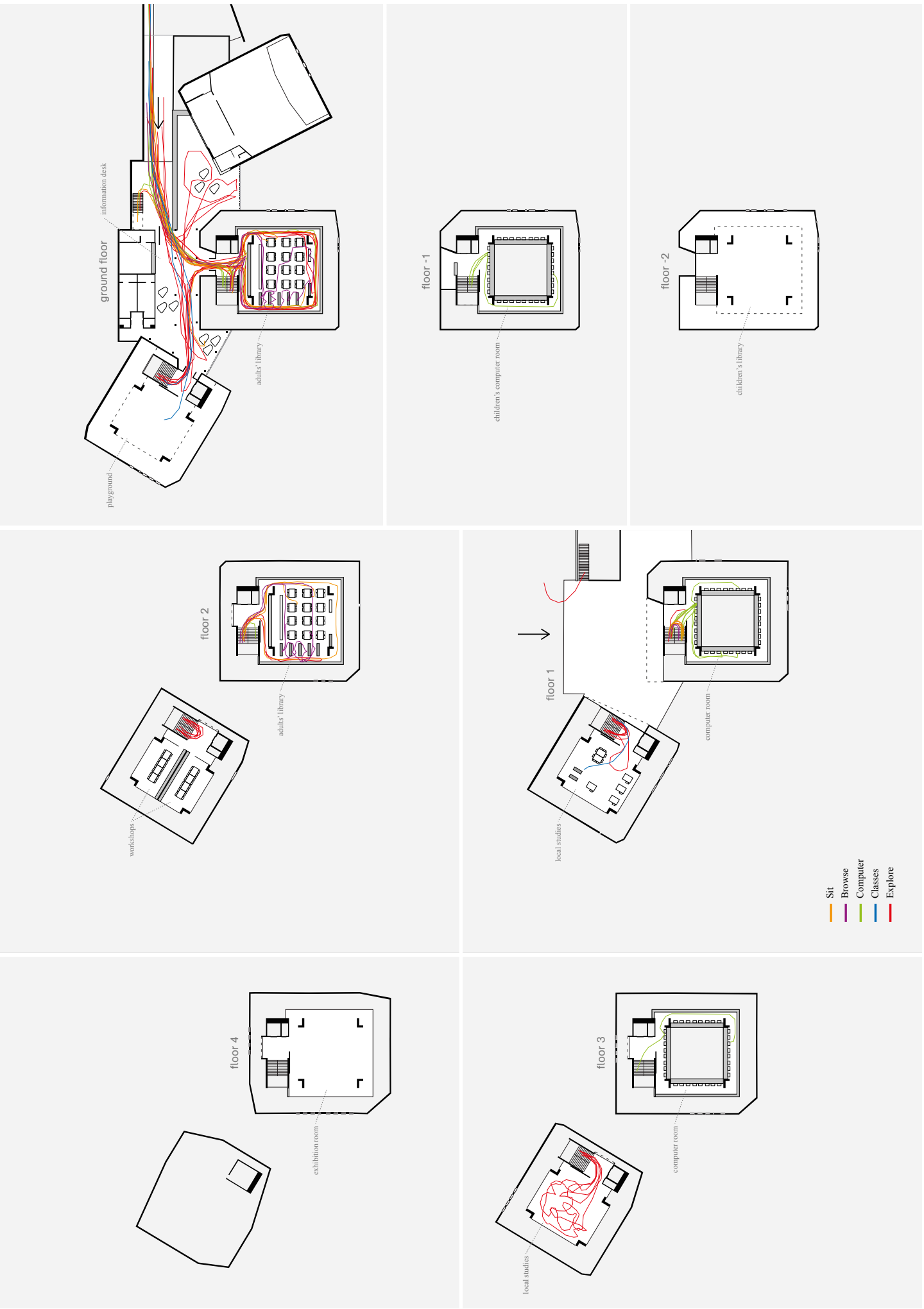

ground floor
information desk
adults' library
playground
floor -1
children's computer room
floor -2
children's library
floor 1
computer room
local studies
floor 2
adults' library
workshops
floor 3
computer room
local studies
floor 4
exhibition room
Sit
Browse
Computer
Classes
Explore

Figure 7.18

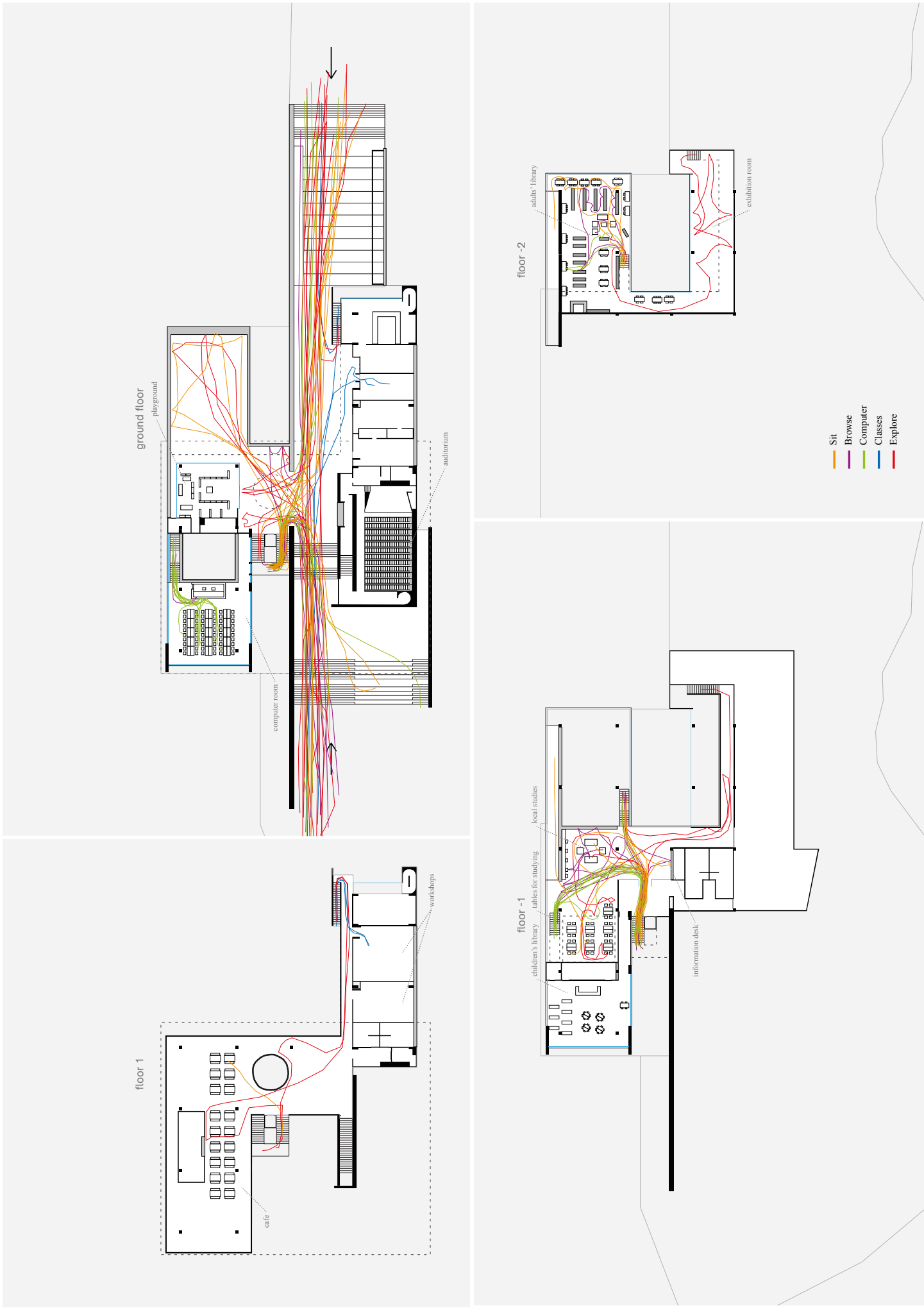

ground floor
playground
auditorium
computer room
floor 1
workshops
cafe
floor -1
local studies
tables for studying
children's library
information desk
floor -2
adults' library
exhibition room
Sit
Browse
Computer
Classes
Explore

Figure 7.19


Sit
Browse
Computer
Classes
Explore
cafe
children's library
tables for studying
information desk
auditorium
exhibition room
workshops
cafe
ground floor
adults' library
playground
local studies
computer room
mezzanine

Figure 7.20

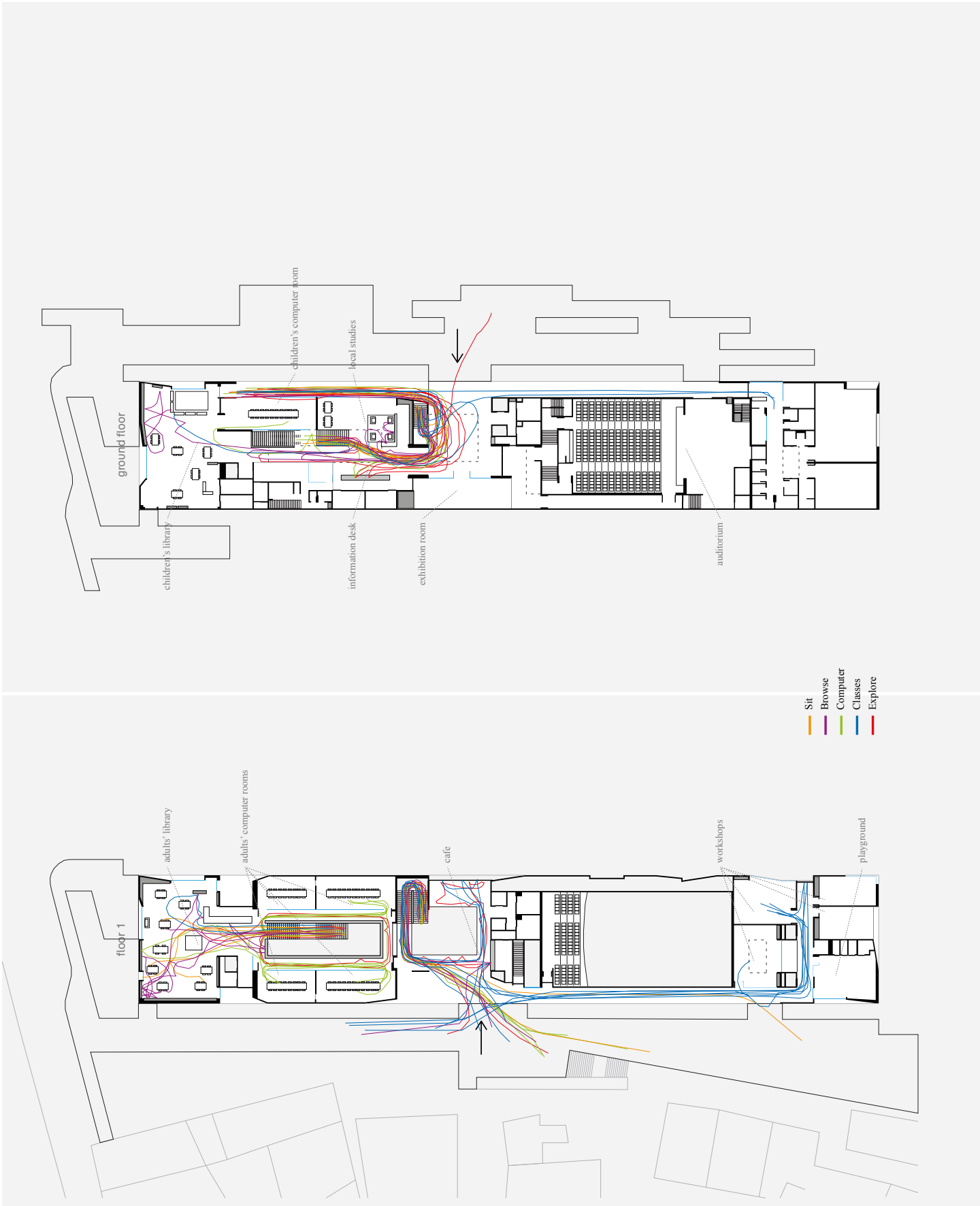

ground floor
children's computer room
local studies
children's library
information desk
exhibition room
auditorium
Sit
Browse
Computer
Classes
Explore
floor 1
adults' library
adults' computer rooms
café
workshops
playground

Figure 7.21

Figure 7.17: Observed movement paths of 40 visitors (or groups of visitors) in PB San Javier. Colours indicate different patterns of paths: firstly, users who go to the computer rooms; secondly, users who search for a place to sit and use the material or computer that they brought with them; thirdly, users who browse for material from the libraries' collections; fourthly, visitors who go to a programmed activity in a workshop; and finally, visitors who explore the buildings' spaces and leave.

Figure 7.18: Observed movement paths of 21 visitors (or groups of visitors) in PB España. Colours indicate different patterns of paths: firstly, users who go to the computer rooms; secondly, users who search for a place to sit and use the material or computer that they brought with them; thirdly, users who browse for material from the libraries' collections; fourthly, visitors who go to a programmed activity in a workshop; and finally, visitors who explore the buildings' spaces and leave.

Figure 7.19: Observed movement paths of 45 visitors (or groups of visitors) in PB La Quintana. Colours indicate different patterns of paths: firstly, users who go to the computer rooms; secondly, users who search for a place to sit and use the material or computer that they brought with them; thirdly, users who browse for material from the libraries' collections; fourthly, visitors who go to a programmed activity in a workshop; and finally, visitors who explore the buildings' spaces and leave.

Figure 7.20: Observed movement paths of 41 visitors (or groups of visitors) in PB Belén. Colours indicate different patterns of paths: firstly, users who go to the computer rooms; secondly, users who search for a place to sit and use the material or computer that they brought with them; thirdly, users who browse for material from the libraries' collections; fourthly, visitors who go to a programmed activity in a workshop; and finally, visitors who explore the buildings' spaces and leave.

Figure 7.21: Observed movement paths of 36 visitors (or groups of visitors) in PB Fernando Botero. Colours indicate different patterns of paths: firstly, users who go to the computer rooms; secondly, users who search for a place to sit and use the material or computer that they brought with them; thirdly, users who browse for material from the libraries' collections; fourthly, visitors who go to a programmed activity in a workshop; and finally, visitors who explore the buildings' spaces and leave.

visitors choose not to complete a full loop. In any case, the resulting movement pattern is such that different paths converge only in the spaces that form the entrance of PB San Javier, which means that any encounter between different user groups occurs in these entrance spaces.

In regards to the length of paths (Table 7.22, Column 2), it is noteworthy that all types of paths have similar average lengths, apart from those that explore (Table 7.22, Row 6, Column 2), which have on average more than twice the length of the average distance covered by all observed paths (Table 7.22, comparison between Row 1 and Row 6, in Column 2)[7]. Nevertheless, despite the longer distances covered by visitors who explore, their involvement in interactions has in fact the lowest rate in comparison with all the other types of paths. The highest rate of involvement in interactions happens among the paths that browse (50% of the paths that browse, Figure 7.22, Row 3, Column 2). These interactions, however, are a result of visitors asking staff about location of specific collections, and not of visitor-to-visitor interactions.

Parque-Biblioteca España

The five patterns of movement observed in PB San Javier occur in PB España as well, but take place in a completely different way (Figure 7.18). There were only 21 traces observed due to long periods without people entering PB España. Firstly, one group of visitors (24%) go straight to the computer room. Secondly, 28,5% of visitors enter the building and search for a place to sit and study (generally with their own book, computer or other material). Thirdly, 9,5% of visitors go to the lending libraries to browse for materials to then search for a place to sit. Fourthly, 9,5% of visitors enter the building and go directly to a programmed activity in a workshop. Finally, 28,5% of visitors enter the building, explore its spaces and leave without searching for books or sitting to study.

In PB España, movement based on tracing concentrates in the ground floor and in the staircases of each 'tower' of the building. Different from PB San Javier, where this concentration happens in spaces assigned only as circulation, in PB España,

7 Even if one disregards the path that explored 236m of the building – which could be seen as an exception –, the average length of paths that explore would remain more than twice the average of all the other observed paths (the average length of paths that explore in this case would be of 135m).

visitors movement also concentrates in the adult lending library (Figure 6.09, space 8, in previous chapter). This may be due to the fact that this is the only programmed space visually accessible from the entrance, which perhaps gives the impression that the entire Library is accessed from this space.

Considering all observed paths, PB España has the highest rate (42%) of visitors' involvement in interactions (in comparison with the other Library-Parks). The average length of paths in which visitors interact is 23% higher than the average length of all paths (142,4m in comparison with 115m, Table 7.22, Row 1, Column 3). These interactions concentrate mostly where paths converge.

Parque-Biblioteca La Quintana

The five patterns of movement observed in the previous libraries occur in PB La Quintana as well, but take place in different ways (Figure 7.19). Firstly, one group of visitors (24%) go straight to the computer room. Secondly, 22% of visitors enter the building and search for a place to sit and study (generally with their own book, computer or other material). Thirdly, 13,3% of visitors go to the lending libraries to browse for materials to then search for a place to sit. Fourthly, 8.8% of visitors enter the building and go directly to a programmed activity in a workshop. Finally, 31% of visitors enter the building, explore its spaces and leave without searching for books or sitting to study. Movement from all these 5 patterns concentrates mainly in the spaces of the ground floor, particularly the ones that offer a passage in between adjacent streets. Movement also concentrates in the spaces in front of the main issue desk (Figure 7.19, Floor -1), branching into two main streams: one that leads to the computer room, and another that leads to the lending library and reading rooms.

PB La Quintana has the lowest rate (13,3%) of visitors' involvement in interactions (in comparison with the other Library-Parks) (Table 7.22, Row 1, Column 4). The average length of paths in which visitors interact is 44% higher than the average length of all paths (185m in comparison with 128,2m, Table 7.22, Row 1, Column 4). In other words, PB La Quintana has the highest relative difference between the length of paths that interact and those that do not. However, this difference is strongly influenced by two paths that explore the entire building, covering an average of 344m each (Table 7.22, Row 6, Column 4). Without these paths, the average length

of all paths that interact in this Library-Park would decrease to 105,5m, which is a distance lower than the average of all paths (which, in this case, would be of 126,8m).

Considering the configuration of this Library-Park, it is understandable that the paths that go to a programmed class or meeting do not interact (Table 7.22, Row 5, column 4), since workshop rooms are in a section of the library that is accessed directly from the outside[8] (Figure 7.19). However, visitors who go to the computer room (Table 7.22, Row 4, Column 4) cross spaces programmed as 'local studies' (Figure 7.19) and they do not get involved in interaction either.

Parque-Biblioteca Belén

The five patterns of movement observed in the previous libraries occur in PB Belén as well, but take place in significantly different ways (Figure 7.20). Firstly, one group of visitors (4,8%) go straight to the computer room. Secondly, 4,8% of visitors enter the building and search for a place to sit and study (generally with their own book, computer or other material). Thirdly, 9,6% of visitors go to the lending libraries to browse for materials to then search for a place to sit. Finally, 80,4% of visitors enter the building, explore its spaces and leave without searching for books or sitting to study. In other words, PB Belén has the most unbalanced rate of types of path, where 4 in every 5 visitors explore its spaces as a continuation of public space. This figure might be exposing how much this Library-Park functions more as a continuation of public space, than as a programmed learning facility.

In PB Belén, visitors' paths concentrates in the spaces that form the integration core (Figure 6.32 in previous chapter), which surround the courtyard with the reflecting pool. In fact, most of the length of paths are located in these spaces (that form the courtyard). These spaces are used as passage between adjacent streets – particularly by the users that only explore this building's spaces, as mentioned above. Nevertheless, these spaces offer direct access to most of programmed activities of the library (see section 6.2 in previous chapter), functioning in fact as the link in between these specific programmes, for example, the link between workshop and exhibition room, or between these two and local studies happens through the same spaces used as passage for the visitors that explore. In other words, internal movement in the library

8 For a full account on the spatial configuration of programmes in the Library-Parks, see previous chapter.

(movement from programmed space to programmed space) and its functioning as an extension of public urban space (movement from urban space to urban space) converge in the same area, which is also the integration core. This aspect generates a twofold awareness: on the one hand, passers by become aware of all the activities of the library; and on the other hand, users that engage with the specific programmes of the library are constantly in contact with passers by. This area is also the place where interactions happen the most.

However, PB Belén has the second lowest rate (19,5%) of involvement in interactions among the observed paths (Table 7.22, Row 1, Column 5). In addition, interactions happen more in shorter paths than in longer ones. These facts contradict common sense that the more people move in buildings and the more different users are mixed in the same space, the greater the chance for them to get involved in interactions. This will be discussed later in more detail..

Parque-Biblioteca Fernando Botero

The five patterns of movement observed in the previous libraries also occur in PB Fernando Botero (Figure 7.21). Firstly, one group of visitors (22,2%) go straight to the computer room. Secondly, 13,8% of visitors enter the building and search for a place to sit and study (generally with their own book, computer or other material). Thirdly, 19,4% of visitors go to the lending libraries to browse for materials to then search for a place to sit. Fourthly, 27,7% of visitors enter the building and go directly to a programmed activity in a workshop. Finally, 16,6% of visitors enter the building, explore its spaces and leave without searching for books or sitting to study.

In PB Fernando Botero, visitors' paths concentrate mainly in the spaces that form the entrance hall (in both floors) and in the space labelled as local studies ('sala mi barrio'). This Library-Park has the second highest rate (38,8%) of involvement in interactions among the observed paths (Table 7.22, Row 1, Column 6). Paths that interact are lengthier than those that do not, but this difference is not significant.

Differently from the other libraries, where the percentages of paths that go to programmed activities are not higher than 10%, in PB Fernando Botero these take a little more than a forth of all paths (Table 7.22, Row 5). These paths do not happen in the same spaces crossed by paths that go to different destinations. Rather, they expose

that the building clearly separates programmed classes in workshops from the other activities. This is also observed in PB La Quintana.

Summary of key characteristics of distribution of observed movement

A first finding that this analysis exposes refers to the relationship between the convergence, length and destination of paths and involvement in interactions. Although their difference is not significant, paths involved in interactions are on average lengthier than paths that are not. Visitors who browse for materials in the libraries' collections are the ones that are more likely to be involved in interactions (45,1% involvement, Table 7.22, Column 1). These interactions, however, are generally about visitors requesting help from staff to find particular items. In other words, this rate does not capture visitor-to-visitor interactions, but visitor-to-staff interactions. These two kinds of interaction are fundamentally different from each other. While the later is predictable to a certain extent (or at least it is part of the programme of libraries), the former is not organised by any institutional administration and can be considered unpredictable and unprogrammed. Places where different paths converge are generally where visitor-to-visitor interactions happen. However, as the analysis of movement in PB Belén exposed, different paths converge for a significant portion of their lengths, but this condition does not correspond to a higher rate of involvement in interactions. In short, apart from PB Belén, one may see a trend: the longer visitors' paths are, and the more they converge in space, the greater the change for visitor-to-visitor interactions.

Another aspect that this analysis reveals is that one third of all visitors observed use the libraries to explore their spaces and leave without engaging with any educational content (Table 7.22, Row 6, Column 1). These users deliberately visit most of the spaces of the libraries, crossing the paths of most of the other types of users. Therefore, when looking to the other four types of movement that target specific spaces, one can understand whether and how each building mixes different categories of users, or if it segregates them into predefined programmed activities. In general, one could see that most buildings mix different kinds of users in the same spaces. In some cases, the location of programmes in the layout makes particular user groups to be segregated from the others. This is evident in PB La Quintana and PB Fernando Botero (Figures 7.19 and 7.21), where movement of visitors who go to

		C1	C2	C3	C4	C5	C6
			PB San Javier	**PB España**	**PB La Quintana**	**PB Belén**	**PB Fernando Botero**
R1		Total	40 paths - avg. length: 66,35m Involved in interactions: 12 paths (30%) / avg. length: 77,75m	21 paths - avg. length: 115m Involved in interactions: 9 paths (42%) / avg. length: 142,4m	45 paths - avg. length: 128,2m Involved in interactions: 6 paths (13,3%) / avg. length: 185m	41 paths - avg. length: 198m Involved in interactions: 8 paths (19,5%) / avg. length: 184m	36 paths - avg. length: 115,5m Involved in interactions: 14 paths (38,8%) / avg. length: 118,1m
R2	**Sit**	Average percentage of all libraries: 20,8% Average percentage of involvement in interactions among paths that sit: 14,2%	14 paths / 35% / avg. length: 56m Involved in interactions: 5 paths / 12,5% of all paths; 35% of those that find a place to sit / avg. length: 59,4m	6 paths / 28,5% / avg. length: 72,3m Involved in interactions: 1 path / 4,5% of all paths; 16% of those that find a place to sit / length 48m	10 paths / 22% / avg. length: 123,6m Involved in interactions: 2 paths / 4,4% of all paths; 20% of those that find a place to sit / avg. length: 92,5m	2 paths / 4,8% / avg. length: 156m None involved in interactions.	5 paths / 13,8% / avg. length: 94m None involved in interactions.
R3	**Browse**	Average percentage of all libraries: 12,3% Average percentage of involvement in interactions among paths that browse: 45,1%	4 paths / 10% / avg. length: 78,25m Involved in interactions: 2 paths / 5% of all paths; 50% of those that browse / avg. length: 93m	2 paths / 9,5% / avg. length: 139m Both involved in interactions.	6 paths / 13,3% / avg. length: 126,6m Involved in interactions: 2 paths / 4,4% of all paths; 33% of those that browse / avg. length: 118,5m	4 paths / 9,6% / avg. length: 169,5m None involved in interactions.	7 paths / 19,4% / avg. length: 104,5m Involved in interaction: 3 paths / 8,3% of all paths; 42,8% of those that browse / avg. length: 95m
R4	**Computer Room**	Average percentage of all libraries: 22% Average percentage of involvement in interactions among paths that go to the computer room: 34,7%	14 paths / 35% / avg. length: 44m Involved in interactions: 3 paths / 7,5% of all paths; 21% of those that go to the computer room / avg. length: 51m	5 paths / 24% / avg. length: 100,2m Involved in interactions: 2 paths / 9,5% of all paths; 40% of those that go to the computer room / avg. length: 109,5m	11 paths / 24% / avg. length: 112,5m None involved in interactions.	2 paths / 4,8% / avg. length: 139m Involved in interactions: 1 path / 2,4% of all paths; 50% of those that go to the computer room / length: 96m	8 paths / 22,2% / avg. length: 116,2m Involved in interaction: 5 paths / 13,8% of all paths; 62,5% of those that go to the computer room / avg. length: 120,6m
R5	**Programmed Classes / Meeting**	Average percentage of all libraries: 10,7% Average percentage of involvement with interactions among paths that go to a programmed class: 24,6%	3 paths / 7,5% / avg. length: 55m Involved in interactions: 1 path / 2,5% of all paths; 33% of those that go to programmed classes / length: 61m	2 paths / 9,5% / avg. length: 73m Involved in interactions: 1 path / 4,5% of all paths; 50% of those that go to programmed classes / length: 86m	4 paths / 8,8% / avg. length: 84m None involved in interactions.	None.	10 paths / 27,7% / avg. length: 111,4m Involved in interactions: 4 paths / 11,1% of all paths; 40% of those that go to programmed classes / avg length: 136,2m
R6	**Explore**	Average percentage of all libraries: 33,8% Average percentage of involvement with interactions among paths that explore: 27,6%	5 paths / 12,5% / avg. length: 155,2m Involved in interactions: 1 path / 2,5% of all paths; 20% of those that explore / length: 236m	6 paths / 28,5% / avg. length: 212m Involved in interactions: 3 paths / 14,25% of all paths; 50% of those that explore / avg. length: 217m	14 paths / 31% / avg. length: 157,1m Involved in interactions: 2 paths / 4,4% of all paths; 14% of those that explore / avg. length: 344m	33 paths / 80,4% / avg. length: 214m Involved in interactions: 7 paths / 17% of all paths; 21% of those that explore / avg. length: 197m	6 paths / 16,6% / avg. length: 152,3m Involved in interaction: 2 paths / 5,5% of all paths; 33% of those that explore / avg. length: 110,5m

Notes: (1) Average distances cannot be used to compare Library-Parks, since the buildings have different sizes (in terms of external and internal areas) and their entrances are not clear boundaries in some cases (see Chapter 3, in the description about each Library-Park, in particular La Quintana). Therefore, comparison in between them can only be done in regards to the rates of variation inside each Library's information (e.g. rate of involvement in interation).

Table 7.22: Table that summarises the key findings from the analysis of traced movement in the buildings.

programmed classes do not mix with other visitors' paths. In other cases, such as PB San Javier and PB Belén, the spatial distribution of programmes would encourage interactions between different user groups as the access to particular programmes requires crossing the same spaces that control access to other programmes. This is also curiously evident in PB La Quintana, where visitors who go to the computer room have necessarily to cross the spaces of Local Studies. However, this mix of different user groups does not result in more interactions, as visitors who go to the computer room in PB La Quintana do not interact with anyone.

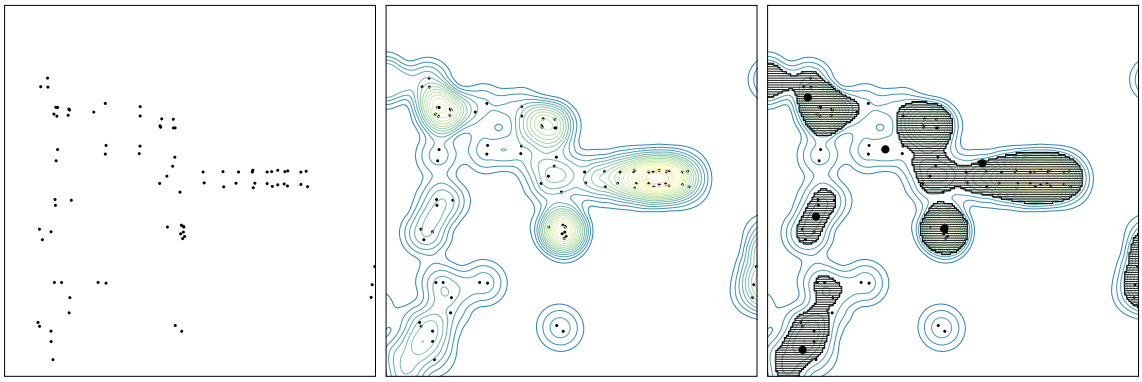
The previous chapter analysed the position of the integration cores in relation to the entrances of the libraries. It showed that PB San Javier's integration core is 5 steps deep, PB España's is 2, PB La Quintana's is 3, PB Belén's is 2 and PB Fernando Botero's is only 1 step from the entrance. It also showed that the buildings have more than one entrance, which suggest that visitors may enter through one door and exit through another. It was highlighted that only in PB Belén and PB Fernando Botero this loop (from outside to outside) reaches the integration core of the buildings. The analysis of observed movement confirms the suggestion proposed in the previous chapter that the integration core had the potential to converge both internal movement and movement from urban-to-urban space. What I add here is that the position of the controlling threshold of the 'actual entrance' in both libraries changes significantly the probable social outcomes of these convergences. In the case of PB Fernando Botero, the convergence of both types of movement (internal movement and urban-to-urban movement) happens in the small space of the lobby and crosses the threshold of the 'actual entrance' and the space of the issue desk. In other words, the convergence of movement is highly observed and controlled by the library staff members, which affects how behaviours may be institutionalised. The case of PB Belén is almost the opposite, where the convergence of paths (internal movement and urban-to-urban movement) happens in spaces that are not controlled by staff members. What is important to highlight with these differences is that, in becoming accustomed to institutionalised rituals of interaction, communication and occupation in a library, visitors absorb codes of civic interaction and behaviour. From the analysis of observed movement, the codes produced in PB Belén are significantly different from the ones produces in PB Fernando Botero. I discuss these in more detail in the next chapter.

7.3. Co-presence based on intervisibility of socialising groups

This section analyses how visitos form networks of co-presence based on intervisibility. I looked particularly at interactions between people for two main reasons. Firstly, interaction is the activity frequently highlighted by the organisers of the Library-Parks as the *raison d'ẽtre* of these facilities (Fajardo Valderrama 2007; Montoya 2014). In fact, some authors even consider the 21st century public library as a place to access other people, rather than information (Imholz 2008; Scott 2011b; 2011a). Secondly, 'interactions between people' is the activity (among the observed ones) that most explicitly exposed the difference between unprogrammed and programed use of the library. The analysis differentiates programmed interactions (in classes and workshops organised by the library) from unprogrammed ones (which may be seen as a result of random encounters in space)[9]. Visitors involved in interactions form clusters in space over time (locations where interactions commonly happen) that are linked based on intervisibility, therefore forming networks of programmed/unprogrammed co-presence.

I do not assume that seeing people interacting necessarily enables the expansion of one's own social network. The focus of the exercise is to construct an aggregate collective picture of how interactions form spatial cultures, rather than the possibility of individuals' expanded social networks. Interaction is not simply based on a face-to-face communication with another person or group, but also on the awareness of possibilities of interaction inherent in the networked distribution of people and groups in space. This defines interaction not simply as an actual pattern of communication, but as the complex relationship of the actual (the interaction one has at a given moment in time) with the virtual or the possible (the possibilities for interaction that are visibly present in a given space). Links of intervisibility are used in order to capture how co-presence forms collective patterns of programmed/unprogrammed co-awareness. This is a relevant issue in public libraries, as they are open to all comers (unprogrammed movement, occupation and interaction) and at the same time are hosts of ideals of democratic communication and collective values

9 Programmed interactions: those that cluster in spaces that can only be accessed with organisational permission of the library. Unprogrammed interactions: those that cluster in spaces with access that does not require organisational permission of the library.



(a) people involved in interactions

(b) clusters of interactions

(c) hotspots and centroids of clusters

Figure 7.23: Diagram explaining the progression of methods utilised to capture the distribution of densities of aggregate interactions ('heatmap'), then to extract the clusters ('hotspots') from this distribution of densities and finally to calculate the location ('centroids') of each cluster.

(Bennett 1995; Buschman 2005; Gaiman 2013). Thereafter, we could argue that the ways in which these two kinds of interactions (programmed/unprogrammed) are distributed in space influence how visitors see themselves as a community[10].

In the previous analyses, observation data was translated into occupancy rates. The relationship of space and occupancy rates was then explored through looking at distributions of probability. While this approach can address the relationship between occupancy and spatial and programmatic characteristics, the actual spatial networks of social interactions among different kinds of users are lost in the analytical process. Thus, this section aims at addressing this gap, mapping how the buildings form intervisibility *networks* among grouped interactions as processes through space and time. Therefore, in order to analyse networked relationships between observed social practices, a method was developed to synthesize the social practices into how they work as network elements – that is, as nodes and links.

Firstly, in order to capture the aggregate picture of the use of the buildings, the analysis addressed where observed interactions concentrate into clusters[11]. This was done with GIS software[12], using the plugin 'Heatmap', which uses Kernel Density

10 In this matter, it is worth mentioning again Zook and Bafna's study on the Seattle Public Library (2012), in which they elaborate that intervisibility between different activities' paths generate distinct 'senses of publicness', potentially influencing how visitors see their role in space and in social practices. Intervisibility between different subject groups is also a crucial aspect in Peatross' study on institutions that deal with restriction of movement and occupation (namely Alzheimer units and juvenile detention centres) (2001). She exposes how different spatial arrangements of 'visibilities' influence relaxation and kinds of control over patients.

11 In other words, the locations where interactions commonly happen.

12 QGIS version 2.6.1

Estimation to construct a density raster ('heatmap') of an input point vector data (Figure 7.23b). The density is calculated based on the number of points in a location, with larger numbers of clustered points resulting in larger values. 'Heatmaps' allow easy identification of "hotspots" and clustering of points. Since these maps were constructed at aggregate level, the 'heatmaps' expose the distribution of (aggregate) densities of interactions[13]. Three meters was the distance that better represented observed phenomena and exposed differences across cases[14]. In order to differentiate individual clusters in the 'heatmap', the areas that present the same level of intensity of clustering of interactions were extracted ('hotspots', Figure 7.23c). The choice of this level was also based on better representing observed phenomena and exposing differences across cases. This choice was not based on a specific value, but on a proportion in each case's range of values of intensity of clustering: the cut-level was 2/3 of the range. In other words, the 'hotspots' represent the area of the 66% more intensely clustered interactions of each building[15]. Finally, the centroids of each 'hotspot' (cluster) were calculated so that it could construct the understanding of each cluster as a single node with a specific location (Figure 7.23c). Summarising this method, I analysed the distribution of densities of aggregate interactions ('heatmap'), extracted the clusters ('hotspots') from this distribution of densities and calculated the location ('centroids') of each cluster (seen analytically in figures 7.23a, b and c). In this way, the locations where interactions cluster (nodes) are mapped. Connections in between clusters based on their intervisibility were then represented as links in the plans (Figures 7.24 to 7.28).

13 This aggregate level indicates the probable 'common picture' of the buildings, in other words, it allows to annulling particularities of each snapshot.

14 Smaller distances were not capturing clustering, and larger distances were clustering all interactions into a few big clusters. Furthermore, this distance generated clusters that somehow correspond to the picture of the phenomena that was observed on site.

15 Since it is used a proportion, and not a specific value, the analysis does not define in absolute terms what can be considered a cluster, but it defines it relatively to the phenomena observed in each building.

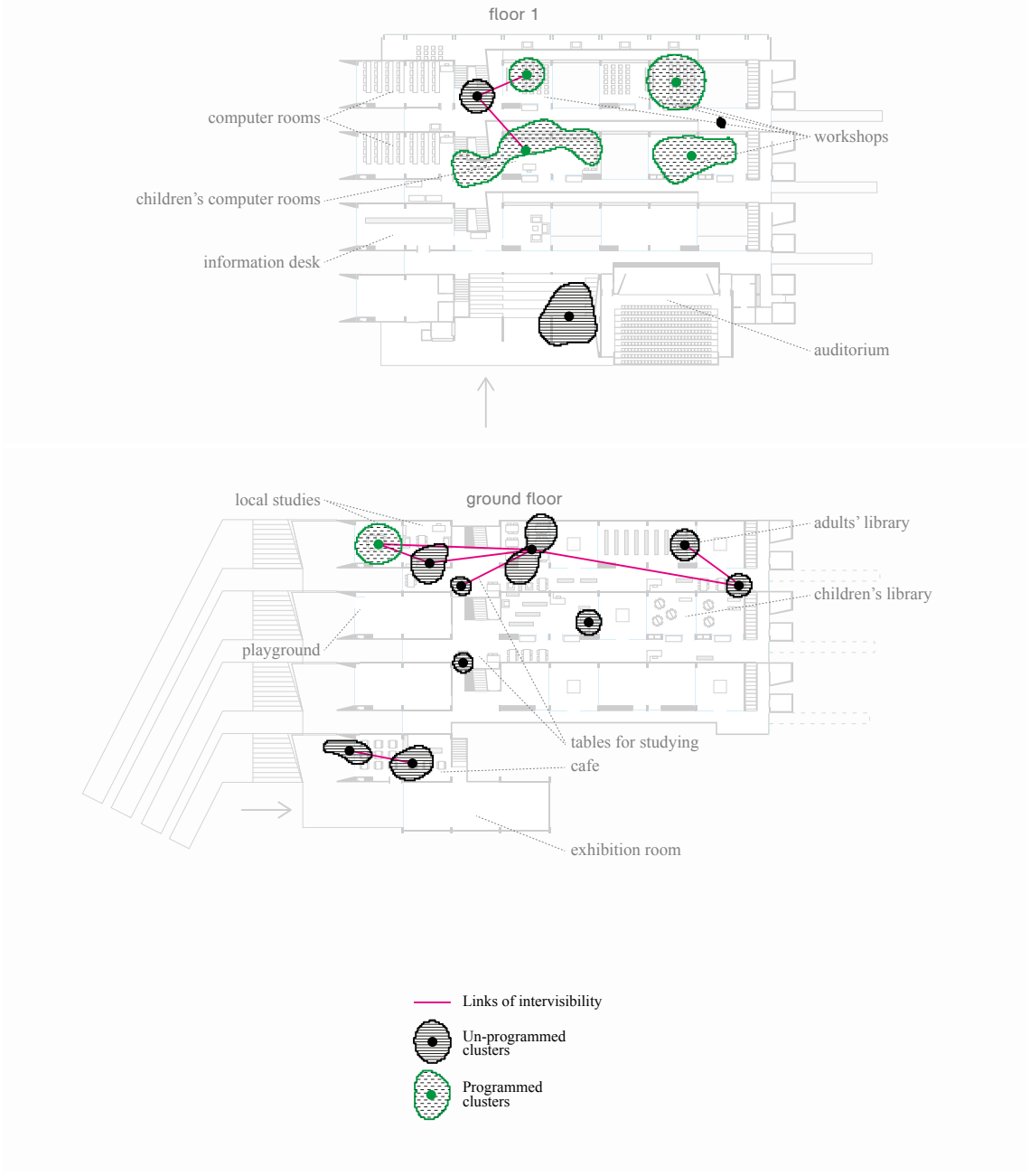


Figure 7.24

Captions of figures 7.24 to 7.28 in page 299.

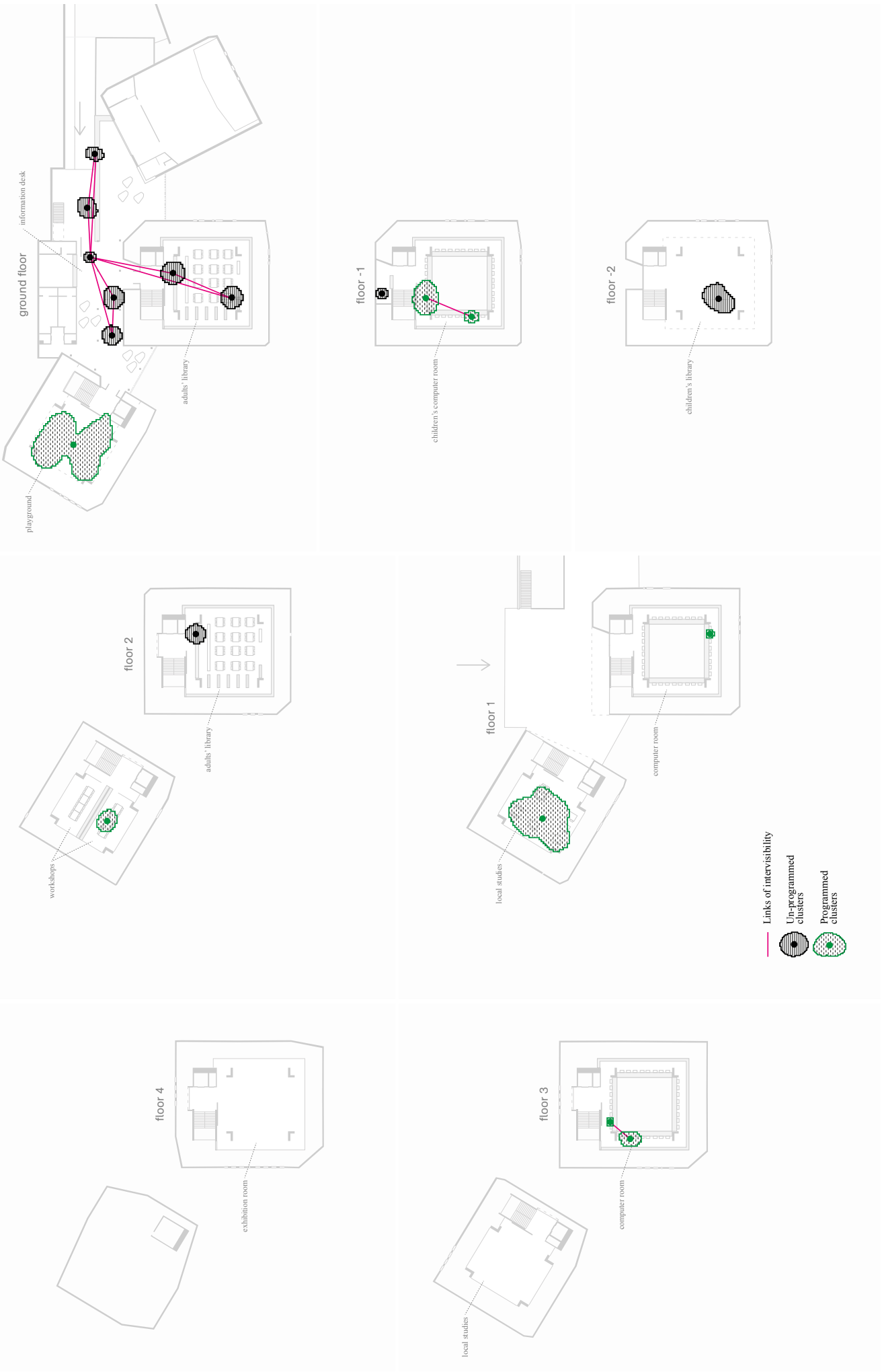

ground floor
information desk
adults' library
playground
floor -1
children's computer room
floor -2
children's library
floor 1
computer room
local studies
floor 2
adults' library
workshops
floor 3
computer room
local studies
floor 4
exhibition room
Links of intervisibility
Un-programmed clusters
Programmed clusters

Figure 7.25

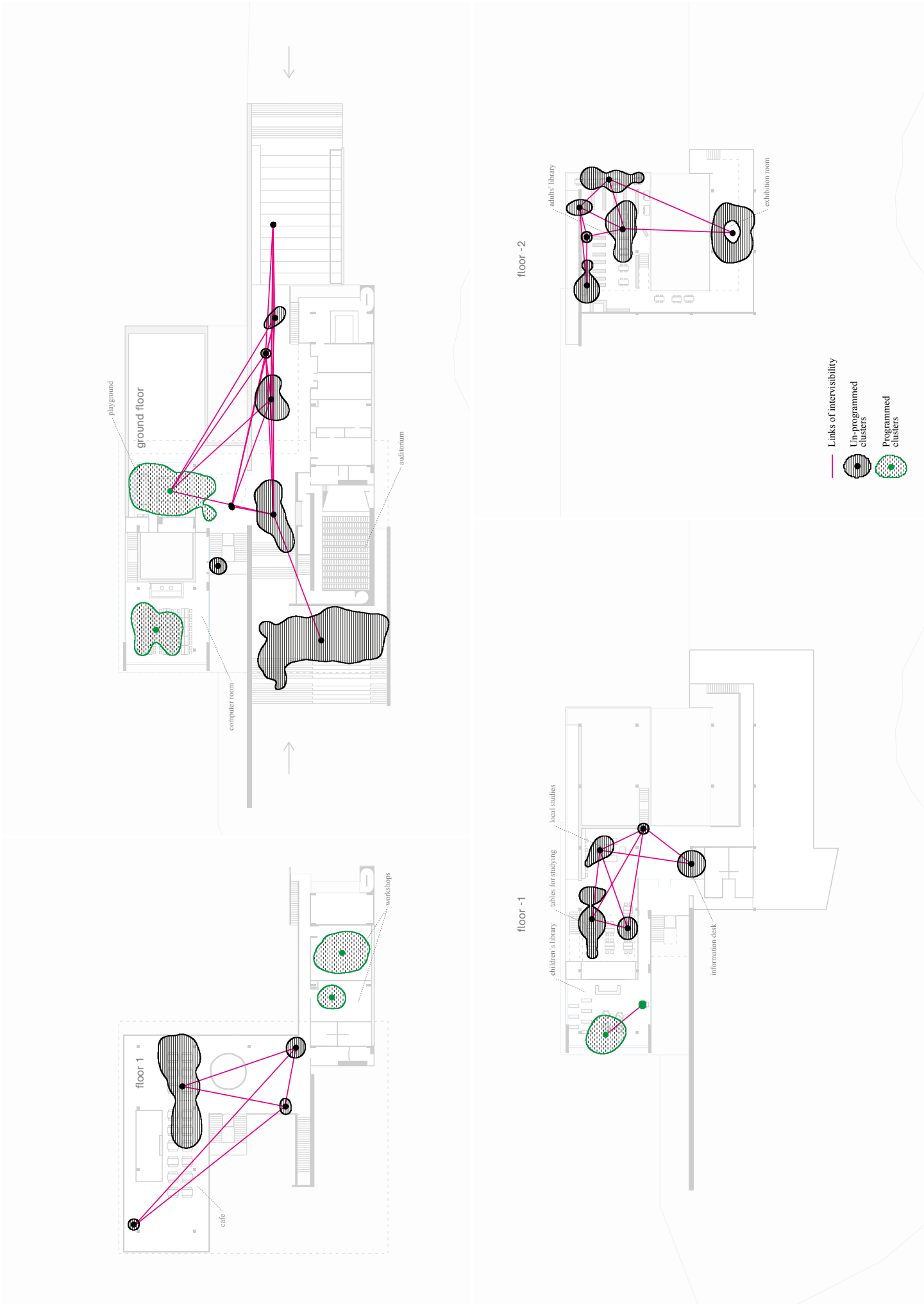

floor -2
adults' library
exhibition room
floor -1
local studies
tables for studying
children's library
information desk
ground floor
playground
auditorium
computer room
floor 1
workshops
cafe
Links of intervisibility
Un-programmed clusters
Programmed clusters

Figure 7.26

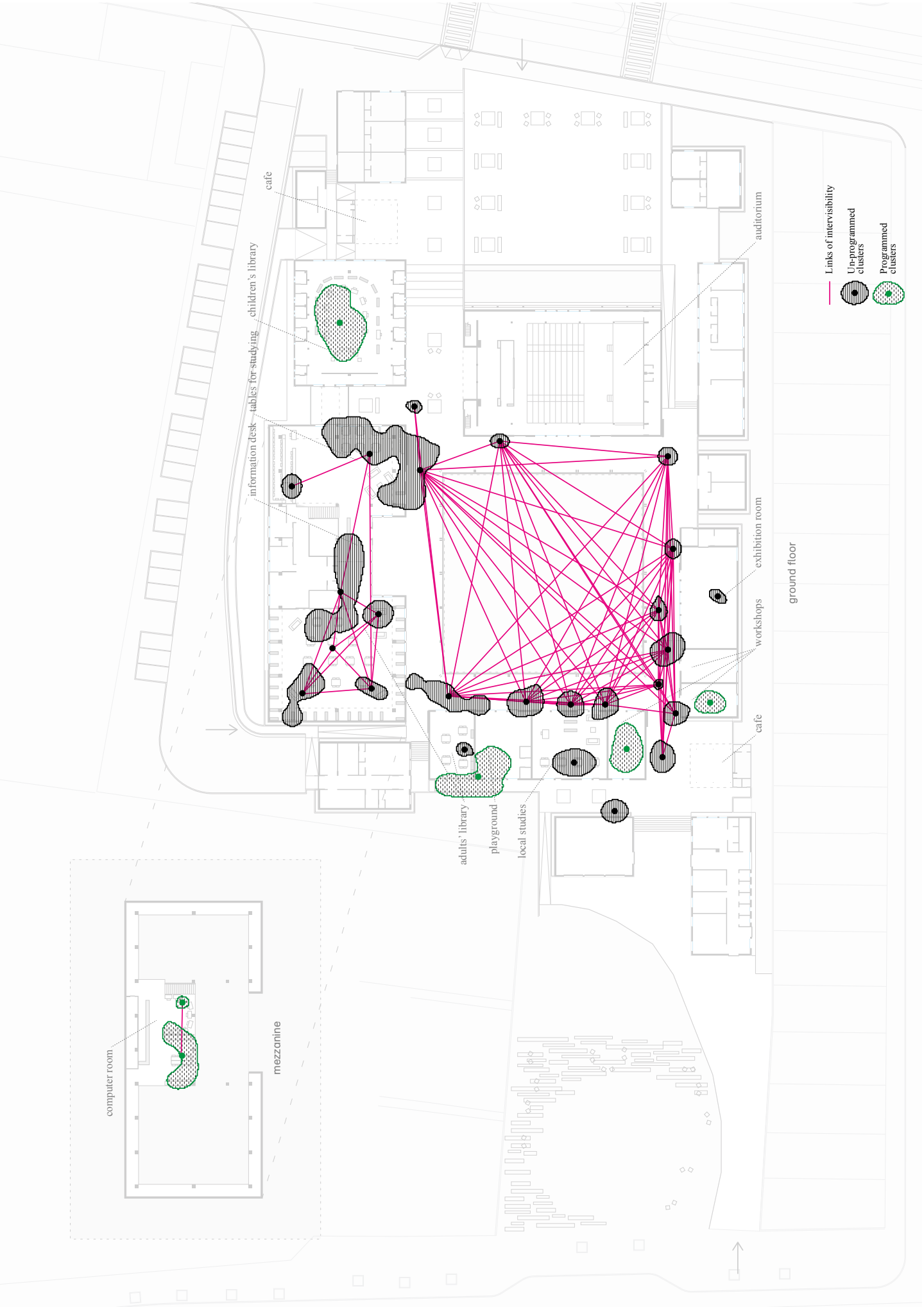

Links of intervisibility
Un-programmed clusters
Programmed clusters
cafe
children's library
tables for studying
information desk
auditorium
exhibition room
workshops
cafe
ground floor
adults' library
playground
local studies
computer room
mezzanine

Figure 7.27

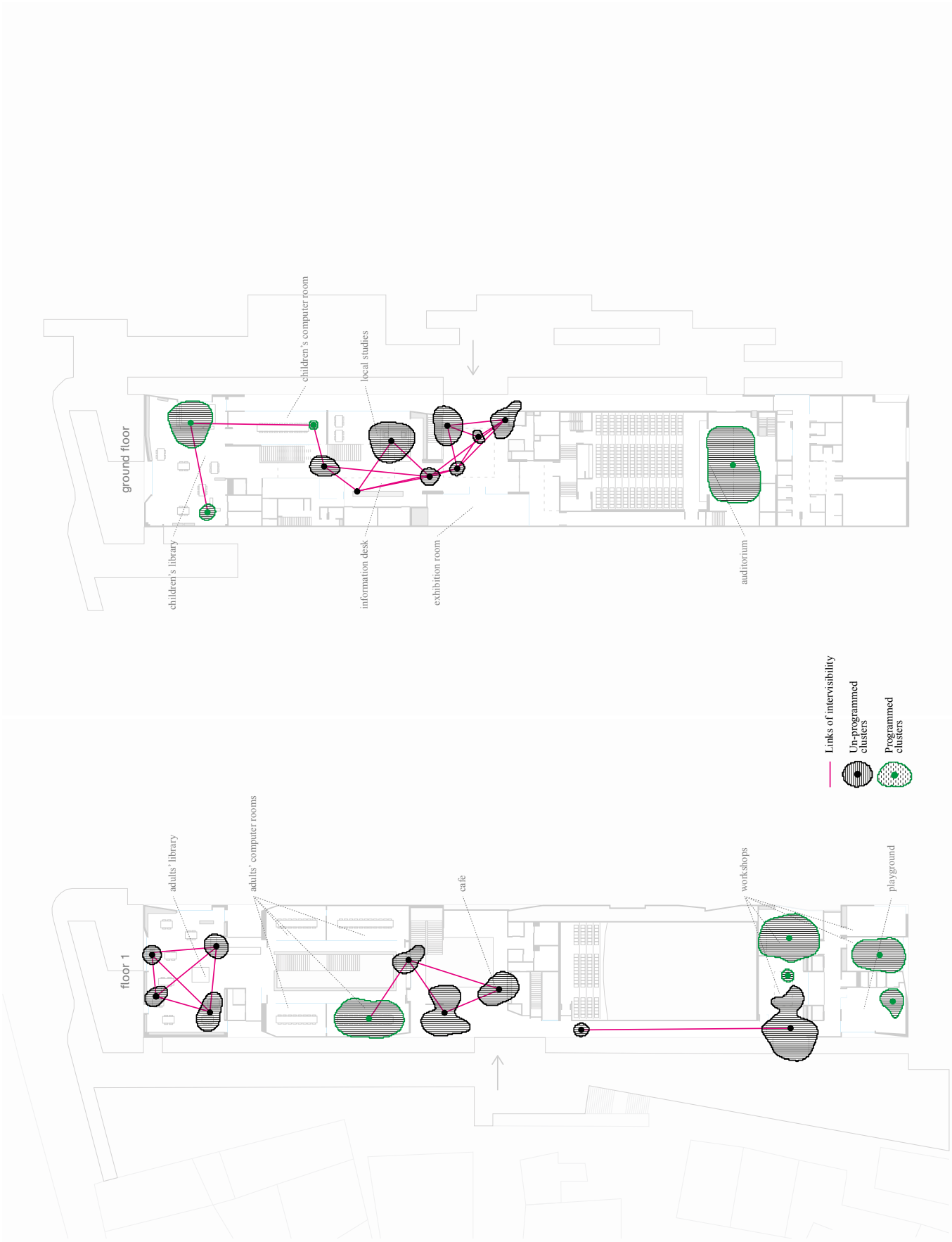

ground floor
children's computer room
local studies
children's library
information desk
exhibition room
auditorium
floor 1
adults' library
adults' computer rooms
café
workshops
playground
Links of intervisibility
Un-programmed clusters
Programmed clusters

Figure 7.28

Figure 7.24: Network of clusters of interactions of PB San Javier. The nodes are the clusters of interactions, and the links are the connections in between clusters based on their intervisibility. Clusters of programmed interactions are represented in green, and cluster of unprogrammed interactions are represented in black.

Figure 7.25: Network of clusters of interactions of PB España. The nodes are the clusters of interactions, and the links are the connections in between clusters based on their intervisibility. Clusters of programmed interactions are represented in green, and cluster of unprogrammed interactions are represented in black.

Figure 7.26: Network of clusters of interactions of PB La Quintana. The nodes are the clusters of interactions, and the links are the connections in between clusters based on their intervisibility. Clusters of programmed interactions are represented in green, and cluster of unprogrammed interactions are represented in black.

Figure 7.27: Network of clusters of interactions of PB Belén. The nodes are the clusters of interactions, and the links are the connections in between clusters based on their intervisibility. Clusters of programmed interactions are represented in green, and cluster of unprogrammed interactions are represented in black.

Figure 7.28: Network of clusters of interactions of PB Fernando Botero. The nodes are the clusters of interactions, and the links are the connections in between clusters based on their intervisibility. Clusters of programmed interactions are represented in green, and cluster of unprogrammed interactions are represented in black.

Co-presence based on intervisibility of socialising groups – Comparisons between the buildings

This analysis indicates that the Library-Parks differ in terms of how clusters of interactions are distributed and how they form networks of intervisibility. A first characteristic observed refers to the number of clusters in each Library Park and the ratio of clusters formed by programmed interactions against those formed by unprogrammed ones (Figures 7.24 to 7.28 and Table 7.29, Row 2). This observation divides the Library-Parks in three groups: a first one (PB La Quintana and PB Belén) where one finds a ratio of 4 to 1 (4 clusters of unprogrammed interactions for every cluster of programmed interactions); a second group (PB San Javier and PB Fernando Botero) where the ratio is of 2 to 1 (2 clusters of unprogrammed interactions for every cluster of programmed interactions); and a last group made by PB España alone where unprogrammed interactions and programmed ones form almost the same number of clusters (ratio of 1 to 1). In other words, form group 1 to group 3 one sees a progression of the percentage of clusters of programmed interactions in the Library-Parks, from around 20% to close to 50%.

A second aspect concerns the 'density' of the networks of intervisibility and the 'bridges' formed in each building (Table 7.29, Row 6). 'Density' is measured in terms of how much the actual graph is close to a graph in which every node is connected to every other node. It is given as a value between 0 and 1 (1 being the densest) as a result of the division of the actual number of edges by the number of possible edges. It is important to note that the number of edges is calculated considering the fact the graph is undirected. In other words, two nodes that are connected generate 2 edges (one from node X to Z and another from node Z to X). The number of possible edges ('Te') is then given as: Te = (n-1)*n, where 'n' is the number of nodes in the system. 'Bridge', in social network analysis terminology, refers to the links that, if deleted, make the graph split into two disconnected groups.

The two densest networks (Table 7.29, Row 6) are the ones found in PB La Quintana and PB Belén. As exposed above, these libraries have interestingly the same proportion of programmed/unprogrammed kinds of clusters: 80% of the clusters are of the unprogrammed kind. On the other hand, the three other buildings with the less dense networks are also the ones with a higher proportion of clusters of programmed

		PB San Javier	PB España	PB La Quintana	PB Belén	PB Fernando Botero
						
R1	Total number of clusters	17	18	29	31	26
R2	Number of clusters of programmed interactions / Number of clusters of un-programmed interactions	5 / 12 (29% / 71%)	8 / 10 (44% / 56%)	6 / 23 (20% / 80%)	6 / 25 (19% / 81%)	9 / 17 (34% / 66%)
R3	Intervisibility in between clusters of programmed interactions	None of the clusters are intervisible (0%)	4 out of 8 clusters are intervisible (50%)	2 out of 6 clusters are intervisible (33%)	2 out of 5 clusters are intervisible (40%)	3 out of 9 clusters are intervisible (33%)
R4	Intervisibility in between clusters of un-programmed interactions	7 out of 12 clusters are intervisible (58%)	7 out of 10 clusters are intervisible (70%)	22 out of 25 clusters are intervisible (88%)	22 out of 25 clusters are intervisible (88%)	17 out of 17 clusters are intervisible (100%)
R5	Percentage and number of edges in between programmed / un-programmed kinds of clusters (*)	50% (8 edges)	0% (none)	4% (8 edges)	0% (none)	7% (4 edges)
R6	Density of the graph (measured in number of edges divided by the possible number of edges)*	16 actual edges / 272 possible edges Density: 0.058	22 actual edges / 342 possible edges Density: 0.064	164 actual edges / 812 possible edges Density: 0.201	168 actual edges / 930 possible edges Density: 0.180	56 actual edges / 650 possible edges Density: 0.086
R7	Number of bridges** in the network / Number of edges in the network	12 bridges in 16 edges (75%)	4 bridges in 22 edges (18.1%)	4 bridges in 164 edges (2.4%)	4 bridges in 168 edges (2.3%)	10 bridges in 56 edges (17.8%)
R8	Number of disconnected groups of nodes	9	10	9	11	9
R9	Number of disconnected single nodes and dyads	7	9	5	9	5

* It is important to note that the number of edges is calculated considering the fact the graph is undirected. In other words, two nodes that are aware of each other generate 2 edges (one from node A to B and another from node B to A). The number of possible edges ('Te') is then given as: Te = (n-1)*n, where 'n' is the number of nodes in the system.
** "Bridge", in social network analysis vocabulary, refers to the edges that, if deleted, make the graph split into two disconnected groups.

Table 7.29: Summarising information on distribution of clusters of interactions in each Library-Park.

interactions. The combination of these two facts gives support to the idea that there is perhaps a trend in which clusters of programmed interactions are less likely to form networks of intervisibility than clusters of unprogrammed interactions. This trend becomes even more salient if one considers that, on average, 30% of clusters of programmed interactions form links of intervisibility; while the figure is of 80% for the ones of the unprogrammed kind (Table 7.29, comparison between Rows 3 and 4). PB San Javier is the only Library-Park in which the network of intervisibility has groups that mix evenly the two kinds of clusters of interactions (Table 7.29, Row 5). In the other 4 buildings, clusters of programmed interaction form groups that are mostly not aware of clusters of unprogrammed interactions (Table 7.29, Row 5). In other words, their networks are in fact split into groups of clusters based on whether interactions are programmed or whether they happen spontaneously. However, PB San Javier is also the building with the lowest value of network density (Table 7.29, Row 6) and with the highest proportion of 'bridges' in the network – that is, this building has a network that is very easily split into different groups (Table 7.29, Row 7). When looking at the proportion of links that are bridges in the networks (Table 7.29, Row 7), PB La Quintana and PB Belén are again picked up with similar values: 2.4 and 2.3% respectively. This is indicative that there is a very small number of links of intervisibility that, if disconnected, would split each group of nodes into different groups. In other words, in these two Library-Parks, clusters of interactions form groups that are densely connected among themselves.

Finally, looking at the spatial distribution of these networks, and considering some qualitative information gathered from fieldwork, a few other aspects can be highlighted (Figures 7.24 to 7.28). In San Javier, not only the sparseness of the network becomes evident, but also the fact that the largest group of clusters is the one found in the last 'step' of the ground floor (Figure 7.24). These spaces are the deepest ones in the spatial layout (see justified graph in Figure 6.05 in the previous chapter, spaces 65 to 76)[16]. They house adult lending library and reading rooms, which explains the fact that observed interactions refer to very quiet conversations between small groups of people.

16 (considering a visit starting from the entrance)

PB España's network (Figure 7.25) is also a very sparse one, and the only group of more than two nodes is found at the entrance hall. This group is made by clusters of unprogrammed interactions only, and it is noteworthy the position of the cluster situated at the entrance of the Library-Park, which is the only one that is aware of all the other in the group. In fact, if this cluster were non-existent, the group would split in three dyads[17]. Furthermore, it is significant to note that this cluster in particular is made of quick conversations between a staff member (that guards the entrance) and visitors (that probably come as often to the Library-Park to be able to know the staff). In other words, even though this is a cluster of *unprogrammed* interactions, it is representative of a situation where the institutional control of the Library is aware of social interaction and group formation (this topic will be developed by the next sections of this chapter). Since this is the only group of clusters of PB España, and since it contains a cluster that is formed by interactions with staff members (which is in fact fundamental for this group of cluster to be a group in the first place), it is possible to infer that, in this Library-Park, if groups of interacting visitors are not explicitly organised in programmed activities, staff implicitly observes them. The architecture of separate volumes (the three 'towers') facilitates this pattern. In the towers, interactions are programmes, and in the links in between the towers, interactions are observed.

In PB La Quintana (Figure 7.26), the main characteristic observed is that clusters form densely connected groups that are split by the floors. In fact, each floor gives structure to networks of interactions of different nature. Starting from the top, one may see: in floor 1, a group is formed in between clusters of interactions of people performing relaxed activities (e.g. eating and observing the panoramic view). In the ground floor, the group formed picks up clusters of people moving and interacting – as well as people meeting to dance, date and play. In floor -1, the group formed picks up people involved in loud conversations (many around sofas and over newspapers), as well as people working together (such as preparing artistic material for an exhibition). And finally, in floor -2, the group formed refers to clusters of interactions between people studying and reading together. As mentioned above, these groups refer to clusters of *unprogrammed* interactions. In effect the only cluster

17 (groups of two nodes)

of programmed interaction that is part of a group is the one found in the space of the playground, which has glass walls that allow passers-by to see the children playing. The four groups are not very different in size and network structure – facts that give support to a suggestion that particular types of groups are not more important than others in the collective experience of this library.

PB Belén's network (Figure 7.27) forms two main groups of clusters: one that happens in the courtyard around the reflecting pool and another that happens inside the spaces that house lending libraries and computer facilities. In contrast to PB La Quintana, the groups are considerably different in terms of size and structure: the first one is twice the size of the second (in terms of number of nodes). On one hand, the first group of clusters picks up a variety of activities – e.g. walking, eating, playing, dating, relaxing, meeting or on the phone/tablet or computer – that are not associated with the library educational roles. On the other hand, the second group picks up activities that are related to the Library-Park functioning as a learning facility, where people are reading, studying, working on the computer, etc.. Considering the different sizes of these two groups, Belén seems to works more as an extension of public space than as a formal learning facility (in terms of social awareness) – a characteristic repeatedly observed in the series of analyses in this chapter. In fact, un-linked clusters (that is, clusters that are not linked to other clusters by means of intervisibility) happen in spaces that are directly accessible to the spaces of the courtyard. The spaces where these un-linked clusters were observed are purposed as educational spaces (lending libraries, workshops and exhibition room). This fact implies that the full educational function of this library is realised through its capacity to work as a public space, since movement from one educational programme to another necessarily crosses the spaces that are mostly used as extension of public space.

In PB Fernando Botero's network (Figure 7.28), intervisibility in between clusters of programmed interactions is fragmented and form bridges. On the other hand, intervisibility in between clusters of unprogrammed interactions forms three main dense groups: one that is found in the entrance hall (ground floor); a second which is found in front of the cafe (floor 1); and a third one which is found in the space programmed as adult lending library. In the first, interactions refer mainly to three kinds of activity: people relaxing and eating in the hall space; people interacting while walking to and from the main entrance of the library; and people involved

in meetings that use the space programmed as 'local studies'. In the group that is found in front of the cafe, most people are eating and interacting, and in the third group, most people are studying and reading, being involved in very quiet forms of interaction. Similar to PB España, it is significant to note that some clusters in each of these groups of clusters are made of small conversations between a staff member and visitors. In other words, even though these are clusters of *unprogrammed* interactions, the institutional control of the Library is aware of social interactions and group formation (this topic will be developed by the next sections of this chapter).

In summary, this section exposes three key aspects. Firstly, in most cases, clusters of programmed interactions do not form networks of intervisibility with those of unprogrammed interactions – a fact that suggests that there is a clear *spatial* divide between how the libraries work as (a) institutional organisers of social relations and as (b) providers of spaces for emergence of socialisation based on informal interactions. Secondly, networks of intervisibility between clusters of unprogrammed interactions seems to be subjected to staff observation. Sections 7.4 and 7.5 will address this potential practice of surveillance. Thirdly, the networks of intervisibility between clusters of interactions and their position in the spatial structure differ significantly from case to case. This section (7.3) discussed some of these differences, but a full discussion on how spatial and programmatic characteristics interrelate with these networks of intervisibility will only be drawn in the next chapter.

7.4. Mapping implicit institutional control

Regarding library staff, in order to address their (potential) practice of surveillance, this section maps and overlays the fields of view (isovists) from their common observed location. These fields expose staff members' spatial associations based on visibility connections with other staff and spaces (this section, 7.4) and visitors' clusters of interactions (next section, 7.5).

A first difference among the observed buildings refers to the number of staff members that may be seen from the visitors' spaces[18] (Figures 7.30 to 7.34, dots

18 It escapes the scope of this research to detail the organizational cultures of each Library-Park institutional administration. Such a study would have to consider the staff members that are not visible from visitors' point of view, as well as take into account organizational tasks, transpatial groups and hierarchies among staff members, etc.. Rather, in this work, the interest lies on the relationships between staff and visitors, both explicit ones (in programmed activities) and implicit ones (in unprogrammed areas).

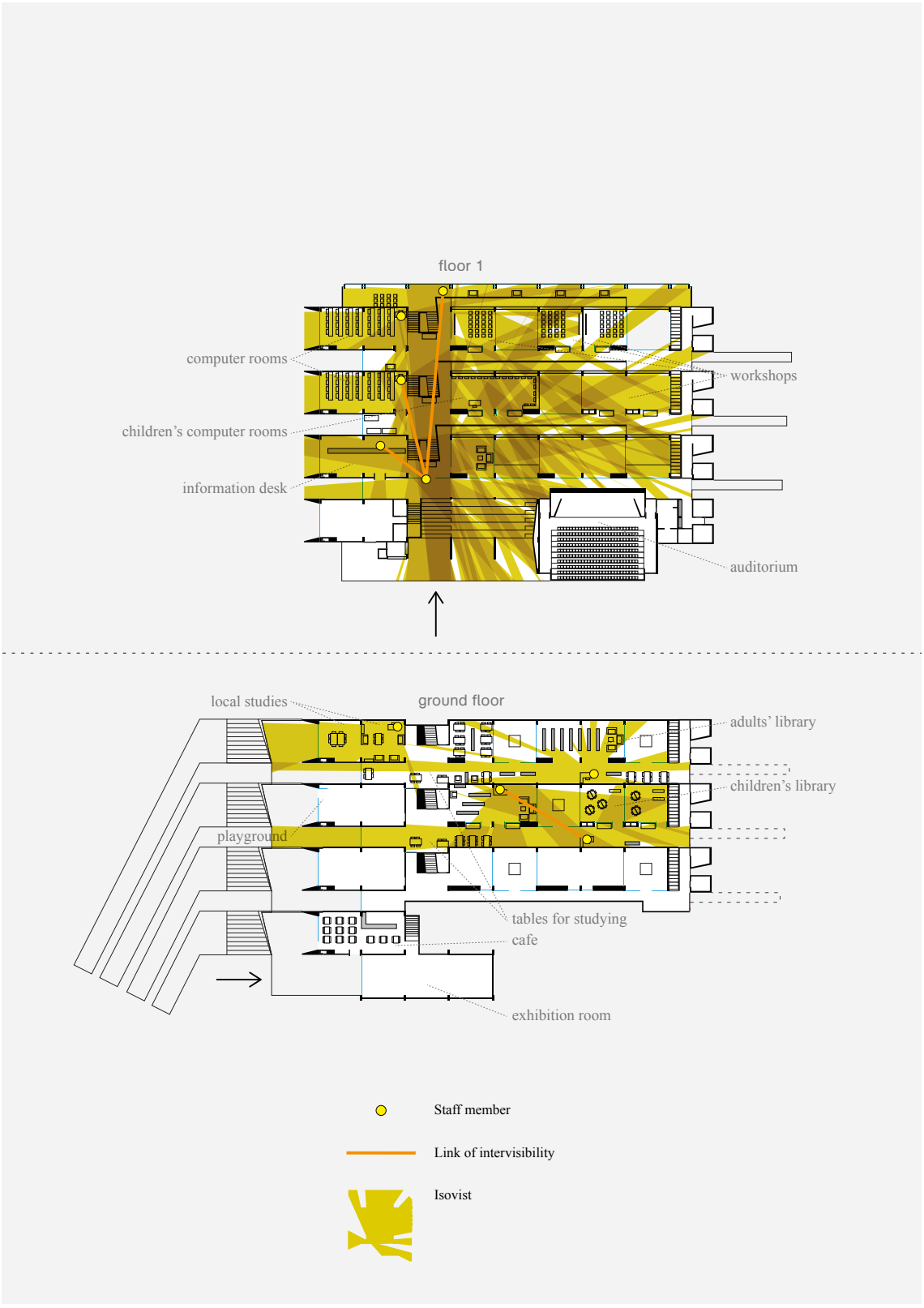


Figure 7.30

Captions of figures 7.30 to 7.34 in page 311.

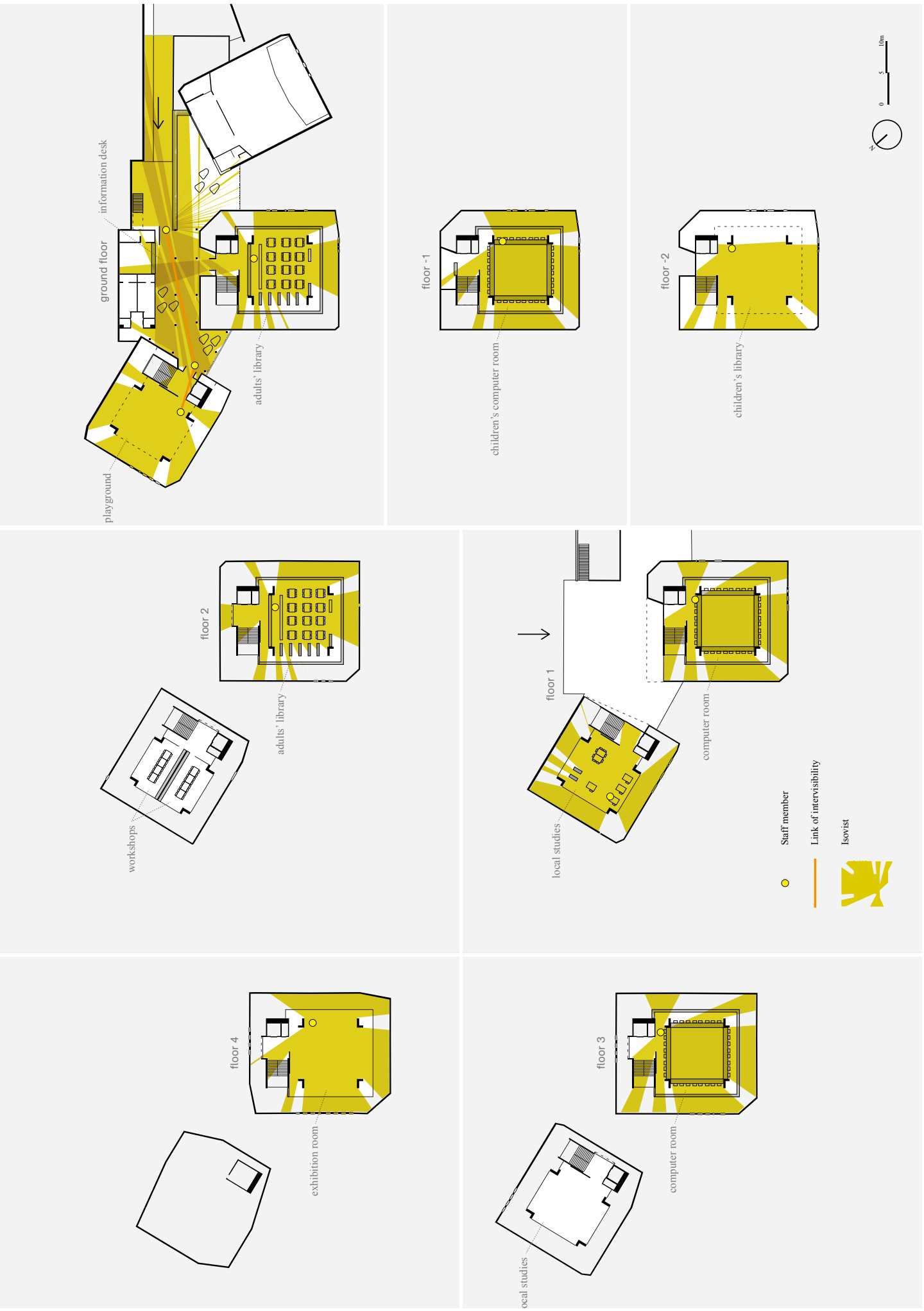

ground floor
information desk
adults' library
playground
floor -1
children's computer room
floor -2
children's library
0
5
10m
floor 2
adults' library
workshops
floor 1
computer room
local studies
Staff member
Link of intervisibility
Isovist
floor 4
exhibition room
floor 3
computer room
ocal studies

Figure 7.31

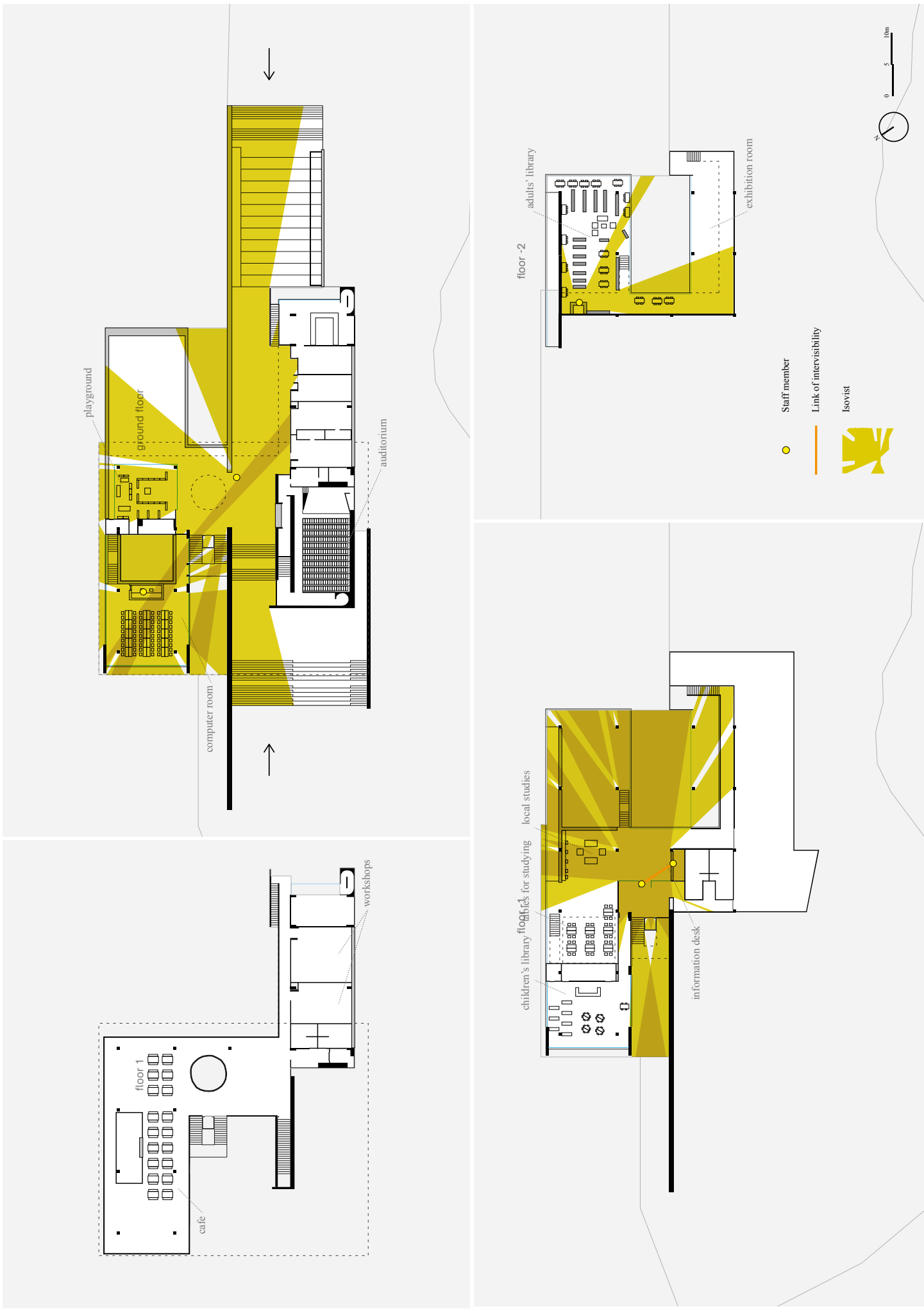

playground
ground floor
auditorium
computer room
floor -2
adults' library
exhibition room
Staff member
Link of intervisibility
Isovist
local studies
tables for studying
children's library
information desk
floor 1
workshops
cafe

Figure 7.32


cafe
children's library
tables for studying
information desk
auditorium
Staff member
Link of intervisibility
Isovist
exhibition room
ground floor
workshops
cafe
adults' library
playground
local studies
computer room
mezzanine

Figure 7.33


ground floor
children's computer room
local studies
children's library
information desk
exhibition room
auditorium
floor 1
adults' library
adults' computer rooms
café
workshops
playground
Staff member
Link of intervisibility
Isovist

Figure 7.34

Figure 7.30: Positions and combined isovists of the 9 observed staff members of PB San Javier. Darker shades of yellow indicate where isovists overlay. Orange lines represent staff members' intervisibility.

Figure 7.31: Positions and combined isovists of the 11 observed staff members of PB España. Darker shades of yellow indicate where isovists overlay. Orange lines represent staff members' intervisibility.

Figure 7.32: Positions and combined isovists of the 5 observed staff members of PB La Quintana. Darker shades of yellow indicate where isovists overlay. Orange lines represent staff members' intervisibility.

Figure 7.33: Positions and combined isovists of the 5 observed staff members of PB Belén. Darker shades of yellow indicate where isovists overlay. Orange lines represent staff members' intervisibility.

Figure 7.34: Positions and combined isovists of the 7 observed staff members of PB Fernando Botero. Darker shades of yellow indicate where isovists overlay. Orange lines represent staff members' intervisibility.

represent the usual observed position of staff members). PB San Javier and PB España have around twice the number of staff members in comparison with PB La Quintana and PB Belén. It is noteworthy that the first two are the smallest Library-Parks in terms of area. In other words, their differences are accentuated when one looks at a ratio of staff/area[19]: in PB San Javier this ratio is of 1 staff member per 240sqm; in PB España, it is of 1 per 207sqm; in PB La Quintana, it is of 1 per 567sqm; in PB Belén, it is of 1 per 740sqm; and finally, in PB Fernando Botero, it is of 1 per 551sqm. In short, considering the areas of the buildings, the number of observed staff member in PB España and PB San Javier is 2 times higher than in PB La Quintana and PB Fernando Botero; and 3 times higher than in PB Belén. This is a significant characteristic to consider when looking at the formation of socialising groups among visitors. The constant and close surveillance of staff over visitors' occupation may constrain their activities and make their interaction less informal than if surveillance was not present.

In all Library Parks, intervisibility between staff members generates very sparse networks, where all links are 'bridges' (Figures 7.30 to 7.34, orange links represent intervisibility). In a few cases (PB San Javier and PB Belén), one staff member sees most of the other peers in the same floor, but these ones cannot see each other. The staff member that sees the other staff members is generally responsible for guarding the 'actual entrance' of the buildings. In fact, this same phenomenon happens in the other libraries. Effectively, the libraries' 'actual entrances' and their surrounding spaces consistently feature in staff's visual field (Figures 7.30 to 7.34, darker shades of yellow indicate higher number of overlay), showing that in-going and out-going movement in the libraries is highly observed. However, as seen in the previous chapter, these entrance thresholds are located in different positions in each library – while some refer to the actual entrances of the whole complex, others divide programmatic sectors inside the buildings. The impact of these differences in the formation of socialising groups based on interactions between visitors will be analysed and discussed in the next section.

19 (considering indoor space only)

7.5. Space and networks of intervisibility

This section analyses associations between two groups of relations: interactions through their clustering locations (section 7.3); and staff through their location and field of view (section 7.4). It constructs representations where clusters and staff are presented as nodes, and their associations as links based on intervisibility (Figures 7.35 to 7.39, legends). The maps show how different categories of users (visitors and staff) interrelate in (spatially constructed) networks informed by intervisibility. In their turn, these networks expose two phenomena at the same time: the different ways in which visitors form socialising groups, and how staff members participate in networks of intervisibility, potentially serving for institutional surveillance that discipline these same groups. This section first explains how groups are formed and suggests that they may be characterised considering predominance of particular types of intervisibility links and particular types of nodes. Then it describes each building based on the spatial distribution of these groups.

In short, this section focuses on interaction and (potential) surveillance as a way to expose how groups of visitors associate *in space* with the libraries' organisational intentions. It has been shown that patterns of intervisibility affect the perception of curatorial messages in exhibition layouts (Lu & Peponis 2013). Similarly, intervisibility between different user groups in library spaces construct perceptions of collectivity and social participation (Zook & Bafna 2012).

Visitors (represented as the location of their cluster of interactions) and staff members form groups based on density and sparseness of their links of intervisibility (Figures 7.35 to 7.39, groups are indicated by dashed lines). In most cases, nodes form groups that have no links with nodes from another group (e.g. all groups in PB San Javier, PB España and PB La Quintana). In other words, the network form 'islands' (each group of nodes) that have nodes that are intervisible to each other, but do not see another group. In other cases, however, groups are linked by elements (either links or nodes) that work as bridges in between groups. PB Fernando Botero presents both types of these bridge elements: on one hand, Groups A and B are connected by a link that work as a bridge in between both groups (in other words, a node from one group sees a node from another group); and on the other hand, in between Groups C and D, a node participates in both groups, working therefore as a bridge in between them.

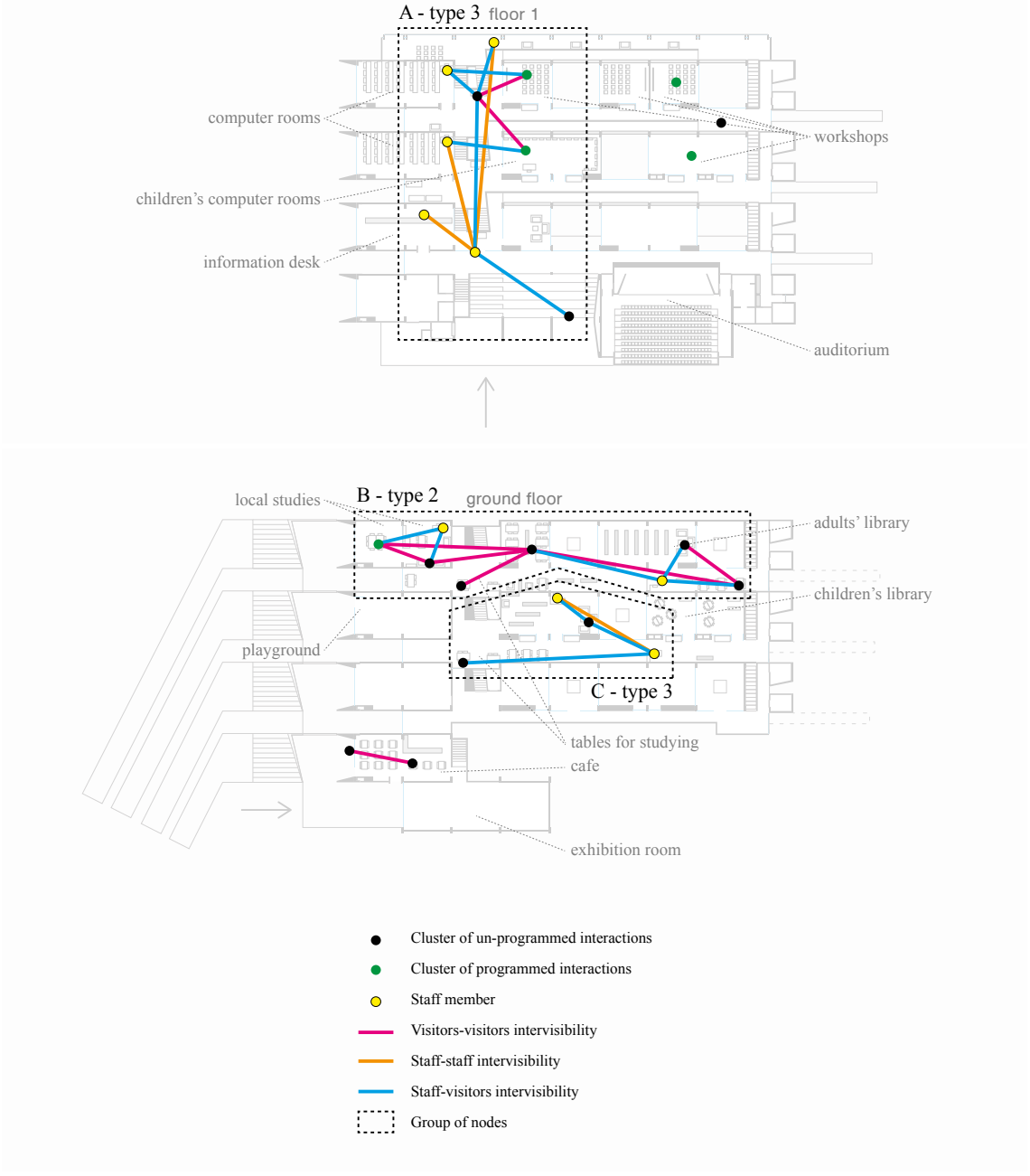


Figure 7.35

Captions of figures 7.35 to 7.39 in page 319.

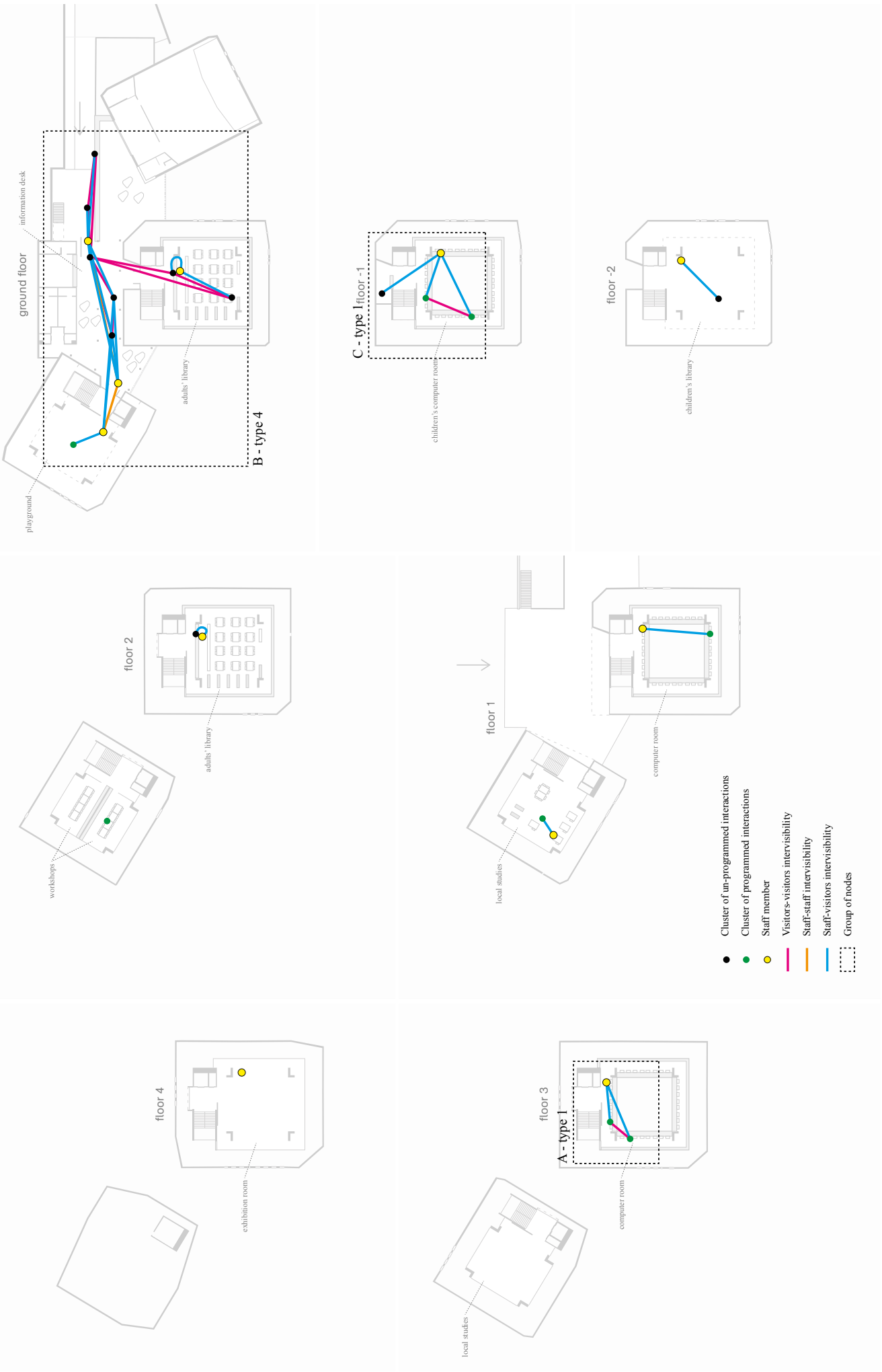

ground floor
information desk
adults' library
playground
B - type 4
C - type 1
floor -1
children's computer room
floor -2
children's library
floor 2
adults' library
workshops
floor 1
computer room
local studies
floor 4
exhibition room
floor 3
A - type 1
computer room
local studies
Cluster of un-programmed interactions
Cluster of programmed interactions
Staff member
Visitors-visitors intervisibility
Staff-staff intervisibility
Staff-visitors intervisibility
Group of nodes

Figure 7.36

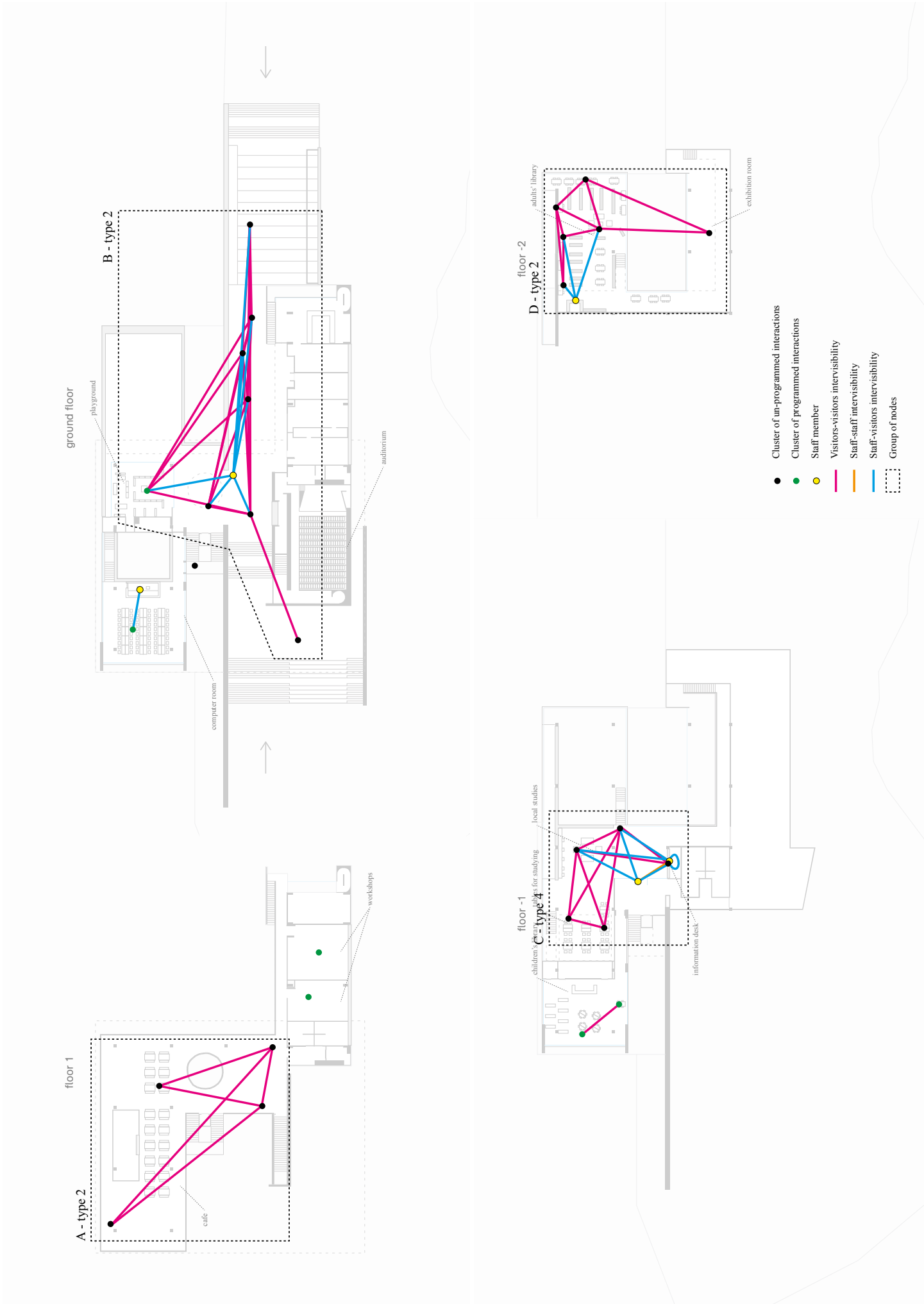

B - type 2
ground floor
playground
auditorium
computer room
A - type 2
floor 1
cafe
workshops
D - type 2
floor -2
adults' library
exhibition room
C - type 4
floor -1
local studies
children's library
information desk
Cluster of un-programmed interactions
Cluster of programmed interactions
Staff member
Visitors-visitors intervisibility
Staff-staff intervisibility
Staff-visitors intervisibility
Group of nodes

Figure 7.37


A - type 4
B - type 2
cafe
children 's library
tables for studying
information desk
auditorium
exhibition room
workshops
cafe
ground floor
adults' library
playground
local studies
computer room
mezzanine
Cluster of un-programmed interactions
Cluster of programmed interactions
Staff member
Visitors-visitors intervisibility
Staff-staff intervisibility
Staff-visitors intervisibility
Group of nodes

Figure 7.38

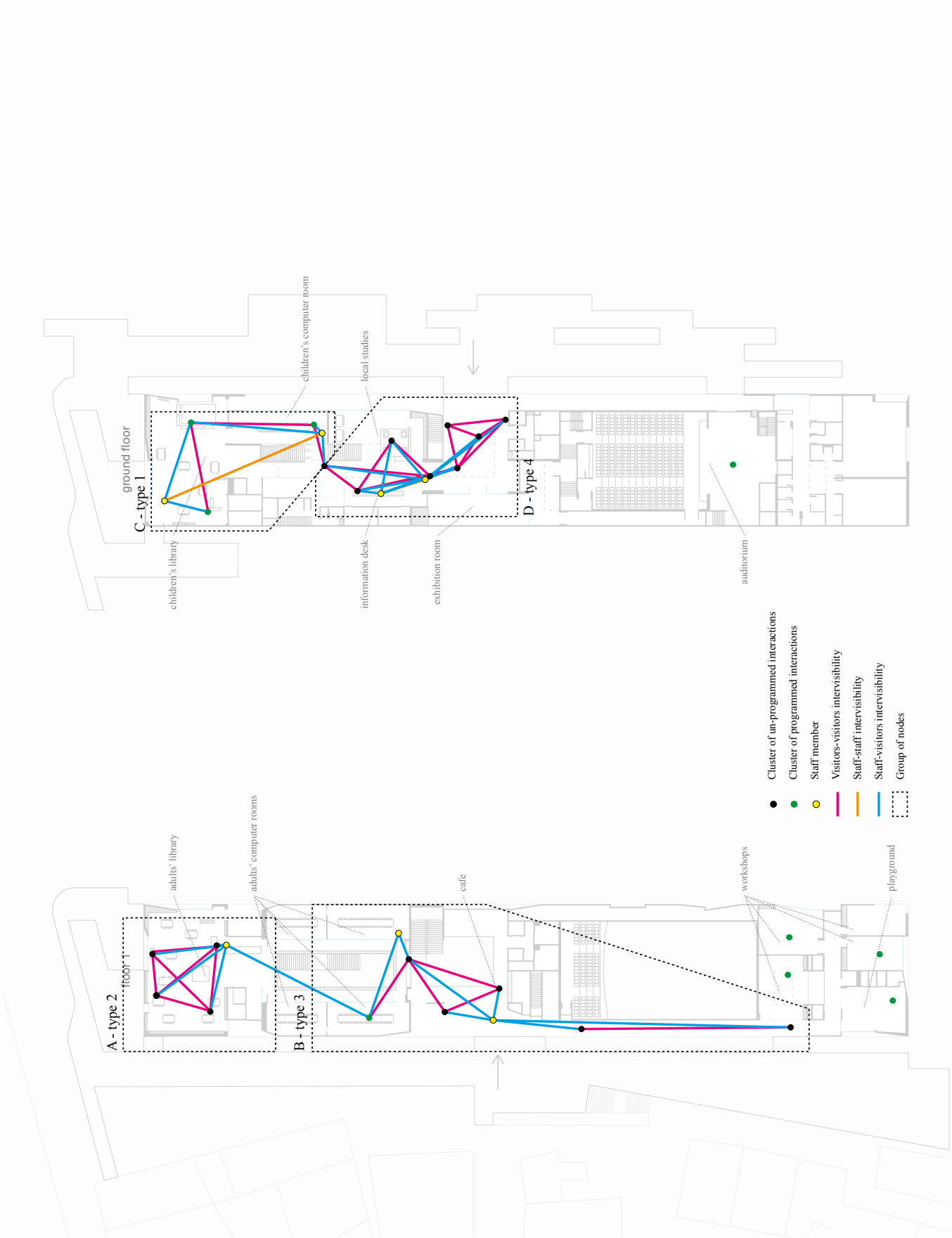

ground floor
C - type 1
D - type 4
children's computer room
local studies
children's library
information desk
exhibition room
auditorium
floor 1
A - type 2
B - type 3
adults' library
adults' computer rooms
cafe
workshops
playground
Cluster of un-programmed interactions
Cluster of programmed interactions
Staff member
Visitors-visitors intervisibility
Staff-staff intervisibility
Staff-visitors intervisibility
Group of nodes

Figure 7.39

Caption of Figures 7.35 to 7.39:

Figure 7.35:"Intervisibility Network" of PB San Javier.
Figure 7.36: "Intervisibility Network" of PB España.
Figure 7.37: "Intervisibility Network" of PB La Quintana.
Figure 7.38: "Intervisibility Network" of PB Belén.
Figure 7.39: "Intervisibility Network" of PB Fernando Botero.

Colours of nodes indicate whether they represent a cluster of unprogrammed interaction (black), a cluster of programmed interaction (green), or a staff member (yellow). Dashed boundaries indicate groupings of nodes based on density and sparseness of links. Links indicate intervisibility between visitors' clusters of interactions (magenta), between staff members (orange) and between staff members and visitors' clusters of interactions (blue). Each letter stands for different groups in each library. The letters are just used to name each group, and should not be seen as a progression (group A does not come 'before' group B), nor should be seen comparatively across cases (for example, group A in PB San Javier is not 'similar' to group A in PB La Quintana).

		PB San Javier	PB España	PB La Quintana	PB Belén	PB Fernando Botero
						
R1	Group Type 1: Programmed interactions and surveillance		A C			C
R2	Group Type 2: Predominant un-programmed interactions	B		A B D	B	A
R3	Group Type 3: Predominant un-programmed surveillance	A C				B
R4	Group Type 4: Combined un-programmed practices		B	C	A	D

Table 7.40: Libraries and different types of groups of intervisibility. Each letter stands for different groups in each library, which can be seen in the plans of the buildings in Figures 7.35 to 7.39. The letters are just used to name each group, and should not be seen as a progression (group A does not come 'before' group B), nor should be seen comparatively across cases (for example, group A in PB San Javier is not 'similar' to group A in PB La Quintana).

When comparing the libraries, a first characteristic concerns the importance of each kind of link (visitors-visitors[20]; staff-staff; and staff-visitors) for the construction of these groups. It is remarkable that some groups would not be linked together if one of the kinds of links were not considered. In some cases, groups are formed mostly because of 'visitors-visitors' links (magenta links): e.g. PB La Quintana's Group A (Figure 7.37) and PB Belén's Group B (Figure 7.38). In other cases, groups would only be held together due to 'staff-visitors' links (blue links): e.g. PB San Javier' Group A (Figure 7.35) and PB Fernando Botero's Group B (Figure 7.39). These are significantly different kinds of groups: while the first ones can only be considered as groups because visitors interact and form clusters in space, the second ones only exist due to staff surveillance over visitors' interactions.

A second characteristic concerns the different roles of programmed and unprogrammed interactions in the formation of networks of intervisibility. There are

20 'Visitors' in this case refers to 'cluster of visitors involved in interactions'.

groups that can only be understood as such because of programmed interactions together with staff surveillance[21]: e.g. PB España's Groups A and C (Figure 7.36) and PB Botero's Group C (Figure 7.39). One may call these groups 'programmed', since they are the result of programmed interactions and surveillance. In turn, the other groups may be seen as 'unprogrammed', which can be further characterised according to the predominance of each kind of link: there are 'unprogrammed' groups in which visitor-visitor links of intervisibility are essential[22] (e.g. San Javier's Group B, Figure 7.35), other groups where staff surveillance links (staff-visitors) are the essential ones (e.g. San Javier's Group C, Figure 7.35) and groups where none of the links predominates (e.g. Belén's Group A, Figure 7.38, and Fernando Botero's Group B, Figure 7.39). In summary one could see 4 types of group: 1) groups of programmed interactions and surveillance; 2) groups made predominantly of unprogrammed visitor-visitor intervisibility links; 3) groups made predominantly of staff-visitor intervisibility links; and 4) groups that do not have a predominant type of link. The first type of group refers mainly to the use of programmed spaces. The other 3 types correspond to the use of unprogrammed spaces – that is, spaces that are weakly controlled, working therefore as extension of public space.

These four types of group are not present in all Library-Parks. Table 7.40 indicates which groups can be found in each building. PB San Javier has groups of the types 2 and 3, PB España has groups of the types 1 and 4, PB La Quintana and PB Belén have groups of the types 2 and 4, and PB Fernando Botero is the only library that has groups of all types. PB España differs from the other Library-Parks in being the only one where there are more programmed groups than unprogrammed ones. The others differ among themselves in having more or less groups in which staff surveillance or visitors' unprogrammed interactions prevail.

The spatial distribution of these 4 types of group in each Library-Park and the kinds of programmatic labels assigned to their locations exposes another layer of information about each group (Figures 7.35 to 7.39, see indication of each group type). In particular, some differences deserve attention with regards to group types 2 and 3. In PB San Javier and PB Fernando Botero, groups of the type 2 (formed

21 In section 7.3, it was clear that clusters of programmed interactions do not form groups, but only dyads or bridges.

22 ('Essential' in the sense that without these links the group would not be seen as such.)

predominantly by unprogrammed interactions between visitors) are found in spaces with a programmatic label that suggests a particular kind of use – namely lending libraries and reading rooms (Figures 7.35 and 7.39). On the other hand, in PB La Quintana and PB Belén, these groups of the type 2 are found in unprogrammed spaces, such as corridors and passages[23]. Therefore, I suggest that these are completely different types of unprogrammed groups, as the firsts are related to the Library-Parks working as places that offer access to formal knowledge (*through* social interaction), while the seconds are related to the buildings working as places *for* social interaction. In the first, social interaction is instrumental in the formation of an educated society, following predefined behavioural rules set by programmatic and institutional objectives. In the second, social interaction does not associate with a predefined educational end and it is only 'useful' in assembling unprogrammed – therefore, unpredictable – socialising groups. This topic – 'usefulness' of social interactions – will be discussed in greater detail in the next chapter. It is then remarkable that the groups of the type 3 happen in the unprogrammed spaces of PB San Javier and PB Fernando Botero. In other words, staff surveillance is predominant in the spaces where unprogrammed interactions between visitors could form groups that are not directly (programmed interactions) or indirectly (unprogrammed interactions in programmed areas) related to an educational content.

7.6. Summary of descriptions and findings for each library

This chapter gradually unfolds the functioning of the Library-Parks through analyses of the distribution of different activities – occupation, movement, interaction and surveillance – and of the formation of co-presence based on these distributions. It is argued that, even if there are no official intentions for social control, the mere presence of staff means that visitors' activities may be observed and socialisation and interaction networks affected. This leads to an implicit form of control that can be more pervasive than overt control based on predefined behavioural rules. One of the main topics of this chapter is precisely to address the tensions behind the organisational aims built upon the desire to enable informal co-inhabitation and

23 La Quintana's Group D is found in lending library and reading rooms, similarly to the other libraries. However, PB San Javier and PB Fernando Botero do not have type 2 groups in unprogrammed spaces.

socialisation and at the same time define institutional rules that discipline society. In addition, the analyses presented here also intend to underpin the formulation of a better understanding of the functioning of buildings beyond the polarisation of weakly and strong programmed buildings.

Institutional control over socialising groups happens mainly through two main mechanisms: 1) previously structured programmed activity (e.g. classes in the workshops) defines the groups to be formed; and 2) groups that are constructed by intervisibility in the unprogrammed areas of the building may be under surveillance of staff members. As said previously, it is not suggested that librarians become disciplinary agents, but that in the formation of collectivity based on informal co-presence and interaction – which is the *raison d'ẽtre* of these facilities, and which is what I try to capture – librarians and other staff members' distribution in space affects how behaviours may be institutionalised. In other words, in becoming accustomed to institutionalised rituals of interaction, communication and occupation in a library, visitors absorb codes of civic interaction and behaviour. It is found that space works as the instrument of the application of these forms of control – be it by segregating different user groups based on programmatic roles, or by allowing panoptic views of social practices.

From the analyses carried out in chapters 5, 6 and this one (7), I constructed a very detailed picture of the architecture, programme and use of each library. This section (7.6) aims to summarise the descriptions and key findings of all analyses. In doing so, this section presents each library as a particular spatial culture. This synthetic description answers the research questions (set in chapter 1) that address the specific case of the Library-Parks: how does the programme of the library interact with the emphasis in offering public space? What are the spatial dimensions of these roles? Finally, how does the use of these buildings relate to Medellín's political agendas of urban and social change? The methodological approach taken exposed that each Library-Park serves for different purposes, in particular, they simultaneously work as (a) institutional organisers of social relations and as (b) providers of spaces for socialisation based on informal interactions. In the chapter that follows, section 8.1 will build on the descriptions presented in this one (7.6), formulating that these spatial cultures may be organised in three main types.

PB San Javier

PB San Javier, similar to all the other four libraries, serves as a symbol of social change: it is located in a place associated with violence and poverty since the 1980s and it is named after a community leader that was killed. The form of the building is a result of the 'chess matrix' of rooms, courtyards and corridors that are organised in 'cascading platforms'. The library was constructed with many entrances (one in each 'strip-step'), but the administration keeps only the main entrance opened. This main entrance leads movement to a main circulation system which I called 'main spine' and which concentrates most of the stairs and ramps of the building. It is also the space furnished with sofas and plants that produce an informal atmosphere.

As shown in chapter 6, PB San Javier's spatial structure mixes its threefold functioning as formal and interactive learning facility and extension of public space. Space does not separate programmes into functional branches (as seen in PB España, PB La Quintana and PB Fernando Botero) – but it organises them into 4 groups of mixed programmes, accessed by a sequence of spaces (the 'main spine'). Most of the programmed spaces of PB San Javier are [a]-types (63%), which means that these programmes function as destinations only and visitors who do not go to a particular programme are not likely to enter its space. As shown in this chapter (7), visitors' occupation in these [a]-type spaces follows the programme assigned to each of these rooms. For example, the adult computer room is used as a place to access computers and nothing else.

The 'main spine' is the most integrated space (as the VGA and convex analysis presented in chapters 5 and 6 show). This chapter shows that the activities that happen mostly in this space are moving and interacting. However, the main spine is formed by spaces that are not so 'generous': they have 5x5m, functioning as passages between many other spaces, constraining therefore the forms of occupation to small groups of people. For activities accommodating large groups of people, the only spaces available are the ones programmed as 'workshops' (10x5m). These are spaces that have to be booked in advanced in order to be used. This means that the architecture of PB San Javier implies that, beyond a certain group size, co-presence has to be organised by the institutional administration of the library. Moreover, aside to constraints related to the sizes of the spaces, it interesting to note that due to the many glass divisions, a

visitor in the most integrated space is visually aware of activities happening in almost all spaces of the same floor (as VGA in chapter 5 and the analyses of isovist from the integration core in chapter 6 indicate).

The 'main spine' is also occupied by staff members. This aspect creates a strongly observed core in the building (as this chapter showed), and it is noteworthy that, considering that this space is made mainly of [d]-type spaces, visitors have the possibility of choosing different routes to move in the building. Nevertheless, despite the spatial affordance that allows free choice, staff positions in the networks of spaces and social practices are such that establish a structure of supervision of this movement. Indeed, the only socialising group observed in unprogrammed areas can be only considered as a group due to considering intervisibility with staff members. In other words, socialising groups formed by visitors' interactions in PB San Javier happen either in spaces strongly controlled by staff surveillance, or in spaces programmed for formal learning.

The most segregated spaces are located on the ground floor, which are accessible only after crossing 'the main spine'. These segregated spaces are the adult library, study room and local studies. The visual segregation of those spaces makes them secluded and intimate. The analyses carried out in this chapter show that people study or read in those areas, rather that socialise.

In short, PB San Javier can be considered mainly as a place to access educational activities, where socialising groups are under constant disciplinary surveillance. In fact, patterns of co-presence suggest that PB San Javier is mostly used as an interactive learning facility. In other words, visitors go to PB San Javier to use computers, attend programmed meetings and engage in artistic courses – which are activities that happen in the rooms programmed (and controlled) for each one of these uses.

PB España

PB España is situated in one of the neighbourhoods that used to be among the poorest and most violent of Medellín (Montoya 2014). The library is easily accessible through the newly constructed line of Metrocables (aerial cable cars) that connect the main Metro line to the dense Comuna of Santo Domingo. Giancarlo Mazzanti, who is the architect that designed PB España, explains that his main intention was

for the library to resemble rocks, which would create an ambiguity between the idea of building (foreground) versus landscape (background) (Mazzanti 2008). Aside this possible metaphor, the building creates a contrast with its surroundings, becoming a landmark in the neighbourhood. Its form may indeed be described as 'three towers' that distribute the programmes in a tree like configuration. These three towers are united by a platform that has two floors. The top one is an open public space that works as a place for fairs and other events as well as a belvedere to view the valley below. The platform below this belvedere is the actual entrance to the library, which provides access to each of the towers.

Differently from PB San Javier, PB España's spatial layout separates programmes into functional areas: one functions as a formal learning facility; and another as an interactive learning facility. The programmes are distributed in the towers one per floor (the workshops have two separate rooms in the same floor). The spaces housing these programmes in each of these areas are [a]-types, working as destination spaces only. These functional branches correspond to the 'towers' that one sees from the outside of the building. In other words, these programmes are organised in many floors[24], breaking, therefore, the continuity of the circulation system that connects them through various [b]-type spaces. This condition makes the entrance hall in the ground floor – which is the most integrated space – the only space that can afford unprogrammed occupation.

Indeed, as this chapter (7) shows, PB España is mostly used as an interactive learning facility, since two thirds of visitors observed were using this building in order to access computer. Co-presence of different kinds of use happens mainly on the ground floor, especially in the entrance hall and adult lending library. The analysis of movement patterns indicates this same trend: different paths converge on the ground floor, and are then separated based on each programmed activity in the other floors. In all other floors, activities do not mix, and follow the programmatic label assigned to the spaces in which they happen. In other words, these analyses indicate that PB España spatially separates visitors into groups engaging in similar activity. For example, visitors reading are aware of other visitors reading, but are not aware of visitors using computers, playing, relaxing or moving from one space to the other.

Patterns of use in PB España are strongly influenced by the spatial and programmatic constraints separates programmes into functional areas in each tower.

24 Up to 7 floors difference from the lowest to the highest.

As a result, the entrance hall on the ground floor – which is the most integrated space – becomes the only space that can afford unprogrammed occupation. This space is furnished with comfortable seats that suggest a relaxed form of occupation. However, staff members' presence implies that these informal uses are under constant surveillance.

PB La Quintana

PB La Quintana is located in an area that used to be among the most violent of the city. Ricardo La Rotta Caballero, the architect that designed PB La Quintana, explains (2012) that the building's slabs are to resemble the cascades of a river that used to flow in the same area. He also explains that the building has two main volumes: "the first, of passive nature, houses the library and adjusts visually to the landscape; [and] the second block, of an active kind, contains auditoriums, classrooms and business development centre which relates to the surrounding city". The programmes that are grouped in the 'passive block' are the ones that often the organisers of the Project of Library-Parks associate with 'formal learning'. The programmes grouped in the 'active block' are the ones that the organisers of the Project associate with 'interactive learning' (Montoya 2014). Moreover, although the experience of visiting the building does not allow for such synchronous reading of the two blocks, the 'cascading platforms' are easily perceived from the outside. The building forms a passage between adjacent streets and uses the inclination of the hill where it is situated to create plateaus and belvederes that provide a wide view of the Medellín valley. These 'cascading' plateaus (or platforms) blur the separation of inside/outside the Library. In the entrance level, visitors may access a number of programmes that are linked directly to the 'urban passage', namely, an outdoor theatre (concrete stands that use the inclination of the hill), auditorium, playground and a space for the Comfama Fund's courses and consultation. In addition, they may see the computer room, which although being on this floor, cannot be accessed directly. The first floor above this passage houses a café and entrances to the workshops. Many architectural characteristics make these two floors (ground and first floors) look more like an open urban space (a belvedere, for example) than part of the interior of a building.

PB La Quintana has various rings of circulation ([c] and [d] types). In fact, as described in chapter 6, this building may be split into two separate groups of rings of spaces, connected by a sequence of [b]-type spaces. The first group of rings is a shallow one, connecting the cafe, children's playground, workshops and auditorium. These programmed spaces are [a]-types only, and it is noteworthy the amount of unprogrammed convex spaces that have many vistas to the surroundings and that function as passages between adjacent streets. The second group of rings spaces is a deeper one, starting from space 19, where children and adult libraries, computer room, exhibition room and a section for material on local studies are located. In this part of the building, none of the programmed spaces are [a]-types. In fact, with the exception of the computer room, which is a [b]-type space, all other programmed spaces of this section are part of one or more rings of spaces. This fact blurs the boundaries between these programmes, since people are likely to cross these spaces in the way between other programmes. In particular, the space dedicated to material on local studies become a real centre of through-movement, since this space is also the entrance to this section, making it a habitual part of the path to all the other programmes. In summary, although the programmes of this deeper ring of spaces are of the 'passive' kind (as described by the architect), their interconnection imply that static occupation is mixed with movement of visitors accessing other programmes. This chapter (7) shows that PB La Quintana is the only library that mixes all three kinds of use (related to formal learning, related to interactive learning and related to extension of public urban space) in all parts of the building. In other words, visitors who are reading, for example, are aware of other visitors that are playing, seeing an exhibition, meeting to study together, or moving across the library.

Intervisibility between visitors' unprogrammed interactions is the main type of link that forms grouped interactions in PB La Quintana. These groups happen due to different types of uses in each of the four floors. These uses range from activities related to public use to those related to interactive and formal learning. In effect, the analyses of social practices carried out in this chapter (7) indicate that the two sectors correspond with this library working as (a) a place that organises social relations towards educational aims; and as (b) a space for emergence of socialisation based on informal interactions, regardless of any institutional control or educational goal. PB La Quintana is therefore perhaps the only library that meets both of the main aims of

the Library-Parks Project without compromising one or the other. Furthermore, it is noteworthy that this 'success' is met without extended surveillance of staff members over visitors. In other words, it is the programmatic arrangement and the spatial affordances that construct the observed phenomena.

PB Belén

PB Belén is situated in a place that was associated with the practice of torture by the state in the second half of the 20th century (Montoya 2014). In other words, similar to the other libraries, the building is used as means to "change the meaning of the site for the population: from marks of violence to marks of culture" (Montoya 2014). Interestingly, the violence in this case originated from the state. The analysis of observed movement presented in chapter 7 shows that, similar to PB La Quintana, PB Belén is constantly used as a public pathway in between two streets. The library can be described as a collection of pavilions surrounding a courtyard with a reflecting pool. The programmes are organised in each of the pavilions and are accessed from the courtyard: there are only a few cases where programmes are linked to each other directly (instead of being connected through the courtyard).

The analyses in chapter 6 described PB Belén's spatial structure as a series of corridors that form rings of spaces ([c] and [d] types) that link to programmed [a] and [b] types of spaces. The VGA analyses (both permeability and visibility, presented in chapter 5) and convex analysis (presented in chapter 6) show that the spaces around the courtyard (which are the unprogrammed [c] and [d] spaces that form rings) are the most integrated ones. The programmes that are most distant to the courtyard are therefore the most segregated ones. These programmed spaces are mostly on the same topological distance from the entrance (4 steps). The fact that many different programmes link to a circulation system made of a few spaces explains why this circulation generates a very diverse convergence of paths in the building.

This chapter (7) shows that PB Belén functions as a place that mixes different categories of users in its programmed spaces. At the same time, through its circulation system around the courtyard it is mainly used as a place to relax, interact and engage with activities that are found in dense urban spaces. Interactions between visitors form two main groups of clusters: one that occurs in the courtyard and another that is

located inside the lending libraries and computer facilities. Only one staff member is present in the courtyard, which is a space with a form that allows for great supervision capacity. However, the fact that it is a very large space with a great number of visitors suggests that staff surveillance is not so strong. In other words, PB Belén works more as a public space than as a learning facility (in terms of social awareness). Furthermore, movement concentrates in the spaces around the courtyard, combining both internal movement in the library (movement from programmed space to programmed space) and its functioning as an extension of public space (movement from urban space to urban space). This aspect generates a twofold awareness: on one hand, passers by become aware of all the activities of the library – for example, reading, meeting, playing and practicing artistic activities together–; and on the other hand, users of the programmes of the library are constantly in contact with the movement of people from the adjacent urban spaces.

PB Fernando Botero

PB Fernando Botero is located in a neighbourhood that has suffered from historical state negligence to the poor conditions of the surrounding population (Montoya 2014). This building is situated in a very steep hillside, and uses this condition to create different entry points in different floors. The library accommodates the various programmes into a rectangular prism that is accessed (the entrances) from the middle of the long side, in both sides of the prism. The various openings (balconies, windows, and doors) break the flatness of the façade with a complex composition of apparently random shapes. This composition hides the programmatic division of the building, which may be simplified in two main blocks (a division which is similar to PB La Quintana). The first one houses auditorium, café and workshops; while the second one houses the lending libraries, computer rooms, and local studies.

Chapter 6 shows that PB Fernando Botero's spatial structure can be described as a global tree-like configuration with local rings. In other words, most rings of circulation in programmed spaces are trivial, covering the same programmatic areas. Moving and occupying space are strongly associated with a programmatic role, since visitors who do not go to a specific programme do not cross its spaces and circulation accesses. The two sections are linked by a group of spaces that forms the entrance

hall to this library, and which constitutes the integration core of the building (as VGA and convex analyses show). In this integration core, furniture suggests a mix of uses, from relaxed forms of occupation to activities related to study and work. In fact, this is the only building whose integration core is programmed. This space is a combination of 'sala mi barrio' (Local Studies), information desk and main entrance. Therefore, as this space is central in the building, there are great chances that potential visitors participate with (or at least become aware of) the activities of these particular programmes, which include visual presentations of community-related issues, reading (and commenting) local newspapers reports, and all communication of the educational programmes of the library.

The analyses of movement and occupation presented in this chapter (7) indicate that co-presence in PB Fernando Botero happens with visitors engaging in similar activity. The only exceptions are the lending libraries (which are [a]-type spaces in the segregated areas) and the local studies (which is the integration core). In both programmes, constant staff members' presence implies that visitors' activities are under surveillance. At the same time, staff surveillance is predominant in spaces where unprogrammed interactions between visitors could form groups that are not directly (programmed interactions) or indirectly (unprogrammed interactions in programmed areas) related to an educational content. As said previously, it is not suggested that librarians become disciplinary agents, but that in the formation of collectivity based on informal co-presence and interaction – which is the *raison d'être* of these facilities, and which is what I try to capture – librarians and other staff members' distribution in space affects how behaviours may be institutionalised. In other words, in becoming accustomed to observed rituals of interaction, communication and occupation in a library, visitors absorb codes of civic interaction and behaviour. I discuss the possible effects of this phenomenon in the chapter that follows.

Conclusion

In synthesis, I expose two trends with regards to how spatial and programmatic constrains affect co-inhabitation and interaction patterns (Figure 7.41, horizontal axis): on one hand, space may segregate users through programmatic sectors and room partitions; on the other hand, it may mix different user groups in unprogrammed areas. This chapter suggests that the first trend results in patterns of use that are strongly defined by programmatic roles. This means that it seems to construct '*strongly programmed buildings*' through spatial segregation and seclusion of spaces, programmes and user groups. Fernando Botero is the best representative of this first trend. The second trend refers to the generative capacity of space, which is brought mainly by the [d]-type rooms where different types of movement paths and occupation converge. The convergence of different movement paths and types of occupation result in spontaneous encounters that are not related to the programmatic roles assigned to space. In other words, the second trend results in the formation of 'weakly programmed environments', as the space syntax literature suggests. However, as this chapter shows, the case of PB San Javier challenges this categorisation. This library is formed by various rings of circulation (a combination of [c] and [d]-type spaces) that result in forms of occupation of the second trend (as I have suggested). However, it is found that the mix of spontaneous encounters brought by weakly programmed environments might be subjected to surveillance control of staff. In this case, organisational behaviour intervenes to impose constraints on the range of interactions space can afford. As a result, in the distinction between weakly/strongly programmed spaces, the weakly programmed pole may be branched into two ends (Figure 7.41, vertical axis): one which is 'strongly under surveillance' – or perhaps 'strongly disciplined' – and another end which is 'weakly under surveillance' – or perhaps 'highly self-regulated'. Figure 7.41 shows a graph of the conceptual 'general tendency' of each building in regards to how strong programme defines activities (horizontal axis), and how strong staff member's presence implies surveillance over visitors (vertical axis). The intention is less to generate another polarising categorisation of buildings and more to indicate potential ways in which the categorisation 'strongly/weakly programmed' could be reviewed. I discuss this proposition in greater detail in the next chapter, which will synthesise the analyses carried out in chapters 5, 6 and this one.

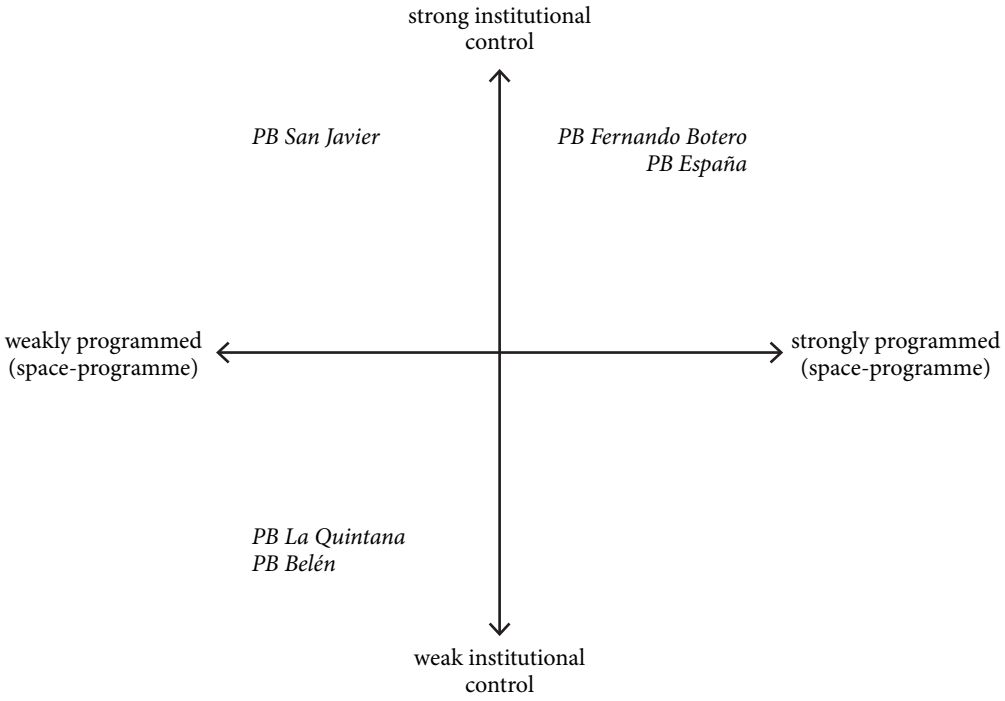


Figure 7.41: Graph of the conceptual 'general tendency' of each building in regards to how strong programme defines activities (horizontal axis), and how strong staff member's presence implies surveillance over visitors (vertical axis). The intention is less to generate another polarising categorisation of buildings and more to indicate potential ways in which the categorisation 'strongly/weakly programmed' could be reviewed.

In any case, this aspect could only be identified through intense observation studies and fieldwork. In other words, in order to identify how a building works as mechanism of social relations, it is fundamental not only to look at the nature of transpatial interfaces, nor only at these and spatial affordances brought by spatial configuration and architectural elements (virtual communities defined by space), but also at how social practices take place in space forming emergent spatial cultures. This chapter indicates that only PB La Quintana and PB Belén offer 'highly self-regulated' spatial cultures; while the other Library-Parks construct 'strongly programmed' (PB España and PB Fernando Botero) and/or 'strongly disciplined' ones (PB San Javier and PB Fernando Botero). The political implications of the analyses in these buildings in relation to the intentions of the Library-Park Project will be addressed at length only at the next chapter.

One of the aims of this chapter was to set a methodological framework for visualising and analysing the formation of these networks, and investigating their functioning. The analysis proposed does not capture formally defined social groups

(such an ethnographic study escapes the scope set by the research questions of this work); nor it captures the 'field of *probabilistic encounter*' that forms a 'virtual community' (Hillier et al. 1987; Hillier 1989) set by spatial and programmatic arrangements. Rather, it looks at *observed encounters* (in opposition to probabilistic ones), and links them based on *observed co-inhabitation* (in opposition to linking them based on conceptually defined social groups). In this way, the libraries are described in terms of the networks of co-inhabitation that they generate *through space*. The relevance of such a description lies in the fact that space is the main element that constrains co-inhabitation patterns: i.e. this analysis exposes the role of space in giving structure to these forms of use as a collective whole.

In this way, the thesis expands the concepts of 'virtual community' and 'spatial culture' – which often refer only to urban spaces – to the interior of buildings. This contribution changes how we analyse public buildings and their social intentions, particularly by considering their function for society beyond what they represent symbolically ('urban change', 'state power', 'democracy', etc.) and what they produce socially (education, administration, etc.). Rather, by considering how public libraries form cultures through the interrelation of space, programme and use, the thesis exposes their generative and revolutionary political potentials, which may change what they represent and what they produce, and which I discuss in the next chapter.

Chapter 8
Discussion and Conclusion

This thesis looks at five libraries in Medellín as main case studies, investigating how architecture, programme and use interrelate in public libraries in order to express an intended public message and realise a specific social and cultural effect. In this final chapter, I return to the findings presented in the previous analytical chapters (5, 6 and 7) in order to discuss them in relation to the literature reviewed in chapters 2 and 3 and the methodology outlined in chapters 4 and 5. The intention is to propose a synthesis of the findings and provide a thorough discussion on the interrelation between space and social function in these libraries. The chapter is organised in three main sections.

The first section (8.1) builds from the last section of the previous chapter, which summarised the findings of chapters 5, 6 and 7, describing each library as a particular spatial culture. It organises the described spatial cultures into three main types. In particular, it contributes to the field of space syntax research, providing a review of the categorisation of 'weakly and strongly programmed buildings' in terms of their social potentials and spatial mechanisms. The second section (8.2) discusses how the findings brought by the analyses carried out (and discussed in section 8.1) relate to the literature outlined in chapters 2 and 3. This section synthesises the theoretical contributions of this research in two parts: firstly, it discusses the role of public architecture in constructing and communicating collective values in society. In particular, it formulates how the spatial arrangement of public libraries distributes power relations. In this part, it advocates the importance of public display and weak programming in producing an empowered community. Secondly, this section discusses the collective value of public libraries in the light of new technologies communication brought by digital culture. In fact, this section emphasises the main challenges that public libraries face in terms of the design of their spaces towards meeting their recent programmatic transformations. Finally,

section 8.3 addresses the limitations of the study and questions for future research. This section explains that the main limitations stem from the methods used and the extent of data collection: the information produced is not sufficient to provide a complete understanding of the functioning of the studied buildings (and of public libraries in general).

8.1. Three types of spatial cultures in the Library-Parks

In the previous chapter, I described each library as a particular spatial culture. This section organises the spatial cultures in the five libraries into three main types. It proposes these types considering how the libraries associate co-presence, architecture and the main political and cultural agendas of the Project. The organisers of the Library-Park Project state that the formation of collectivity based on informal co-presence and interaction is the *raison d'ẽtre* of these facilities (Fajardo Valderrama 2007; Montoya 2014; Empresa de Desarollo Urbano 2014). I argue here that each Library-Park constructs a distinct collective culture based on the intertwining of three main aspects: architectural arrangement, co-presence patterns and organisational control. In fact, the research focused on capturing the consistent ways in which social practices co-inhabit the libraries' spaces and how these practices relate to spatial and programmatic arrangements. I suggest that the Library-Parks function as places that support socialisation based on informal co-awareness and co-presence, potentially strengthening the collective engagement of the surrounding communities, and at the same time function as places that facilitate the exercise of institutional-bureaucratic power over visitors through spatial-disciplinary mechanisms. This section outlines the functioning of the three types of spatial cultures mapped in the studied buildings – namely 'strongly programmed', 'strongly disciplined' and 'highly self-regulated' spatial cultures –, indicating in particular the role of space in structuring these collective formations.

Strongly programmed Library-Parks

From a non-spatial (or transpatial) point of view, all Library-Parks were intended to be what space syntax research calls 'weakly programmed buildings':

the programme does not impose how activities should take place in space, since the buildings are supposed to be used freely by visitors. In other words, and as the organisers of the Project state, these libraries are to be used as if they were 'as public as parks'. However, when one looks at how spatial configuration distributes different programmes, one may then find that some libraries have segregated spaces and allocated activities that separate visitors from interacting. The analyses in chapter 7 indicate that this type of distribution leads towards patterns of use that are strongly defined by programmatic roles. In short, it seems to construct '*strongly programmed buildings*' through the segregation of programmes and user groups in the spatial configuration.

As discussed in chapter 3, the literature indicates that in the functioning of strongly programmed buildings, movement and occupation patterns are influenced more by programmed working tasks (Koch & Steen 2012) and programmatic 'attractors' (Sailer 2007), than by spatial configuration. The analyses carried out in Chapters 6 and 7 confirm these characteristics: in PB Fernando Botero half of the observed visitors' movement paths relate to people going to programmed meetings or classes (as shown in chapter 7, tracing analysis); and in PB España, occupation patterns expose that half the visitors of this library are found in the computer rooms. These rooms are not located in the most integrated parts of these libraries' spatial configurations to explain such a disparity in their use rate. In fact, the computer rooms and workshops for classes in PB Fernando Botero are among the most segregated rooms in the building. In other words, they are the attractors of the whole complex, making visitors split into programmatic sectors that do not intercommunicate.

It should be highlighted that it is not the existence of attractors or programmed routines that *causes* the building to be strongly programmed. In fact, as it will be discussed in detail further in this Chapter, attractors and routines may serve to produce weakly programmed spatial cultures. What I argue here is that the lack of intercommunication between programmatic sectors and the ritualistic strip of [b]-type connected spaces make activities happen *according to* programmatic attractors and routines. As a result, the buildings' functions may be 'explained' by these programmatic roles and the buildings become 'strongly programmed' ones. What is

noteworthy in this case is that the building is conceptually constructed as a weakly programmed one (the libraries are supposed to be used as if they were 'as public as parks'), but is spatially producing a strongly programmed experience.

Strongly disciplined Library-Parks

In some cases, such as in PB San Javier, PB La Quintana and PB Belén, the architectural arrangement allows multiple choices for visitors to move and occupy the library spaces. In other words, in these cases, distinct programmatic sectors *do* intercommunicate through a multi-permeable system of circulation. These buildings would then be called 'weakly programmed', since neither transpatial programmatic roles nor spatial configuration constrain the forms of use that can happen. In this building type, the co-existence of different categories of users and different social practices enables the emergence of spontaneous and un-programmed interfaces and activities (Hillier 1996, pp.201, 255). Therefore, in contrast to 'strongly programmed' spatial cultures, in 'weakly programmed' ones the programmatic roles cannot be seen as the source of explanation and synthesis of the building's functioning, as this functioning is formed by un-programmed social practices and the way in which they are spatially distributed. In fact, 'weakly programmed' buildings could even be associated with eradication of power relations, since not only it is opposed to an environment where a predefined programme defines roles and social structures, but also since its users would be constantly engaged in practices of spontaneous movement, occupation and interaction. However, in some cases, staff members' positions are such that establish a routine of supervision of these patterns of use.

PB San Javier is exemplary in this condition. In its integration core (named 'main spine' in chapter 4) spatial affordances allow choice of different routes for visitors, however, the positions of staff members in the networks of spaces and social practices are such that establish a structure of supervision of movement and spontaneous encounters. Staff presence in this case may be considered as 'coercive', to use Dovey's (2008) definition: 'coercion' is described as a latent kind of force that operates by preventing subjects from ever forming intentions of resistance.

He explains that 'coercion' gains its power from being under the cover of what he calls 'voluntarism', that is through situations that may resemble to allow free choice, but actually prevent it. In other words, 'coercion' resembles what is Bogard (1991) described as "deterrence" (referring to Baudrillard's critique to Foucault's discipline): it is a strategy intended to dissuade an adversary (e.g. a person, group or state) from taking an action not yet started.

The "Citizen Deal for the care and appropriation of the Library-Parks" (Fajardo Valderrama 2007) – which, as I discussed in chapter 1, is the document that endorses the social contract between the state and the population in regards to the use of the libraries – legitimises this form of coercion: staff presence is doing nothing more than assuring that the 'Deal' is respected in the daily functioning of PB San Javier. In other words, staff members become representatives of the 'collective interest' that the 'Deal' defends. Therefore, through their mere physical presence[1], staff members communicate to visitors that they (visitors) are being observed whether they act accordingly to this 'collective interest'. Visitors then acknowledge this presence / assessment and automatically follow the rules of the 'Deal'. This technique which initially applies a minimal physical control of the body so that it is transferred to disciplinary knowledge of the mind is defined by Foucault as the main characteristic of the 'disciplines' (1991). The 'disciplines', as explained in chapter 2, is the set of technologies of social control that act through transforming the body of the person subjected to control into a docile, efficient (economic) and useful social force (1991). Foucault argues that the process of subjectification of the masses – expressed in the creation of biometric technologies of identification and in the tailoring of institutions, laws and punishments to reach each type of individual – exposes how the expression of each one's individuality facilitate their control towards a normalised society (Foucault 1991; Bogard 1991). In PB san Javier, the process of subjectification may be found in the offering of multiple route choices and this resemblance with an environment that encourages 'freedom'[2]. In other words, architecture is used as an instrument for the discretion of forms of control: space allows *subjectification* of visitors' actions (in the sense of allowing individual choices), while staff members

1 (i.e. even if there are no intentions towards social control)

2 It its noteworthy that the 'Citizen Deal for the care and appropriation of the Library-Parks' (Fajardo Valderrama 2007) ends by declaring that "the Library-Parks are spaces for freedom".

presence (minimal physical control) communicates that they (visitors) are *subjected* to observation and assessment.

Highly self-regulated Library-Parks

Only in two of the studied cases – namely PB La Quintana and PB Belén – a condition was found where space offers multiple choices for visitors to move and occupy the libraries *and* staff members' surveillance was not predominant in the networks of intervisibility. In these buildings, the rings of circulation, the connection to adjacent streets and the reduced surveillance give support to the formation of a twofold awareness: on one hand, passers by become aware of all the activities of the library; and on the other hand, users of the programmes of the library are constantly in contact with the movement from the adjacent urban spaces.

In PB La Quintana, the rings of circulation form two main sections in the building. One section corresponds with this library functioning as a place that organises social relations towards educational practices. The other section corresponds with this library working as a place for informal socialisation, regardless of any institutional control or educational goal. It was found that PB La Quintana is perhaps the only Library-Park that meets both the main aims of the Project[3] without compromising one for the other. PB Belén, for example, works more as a public space than as a learning facility (in terms of social awareness). This is due to the fact that interactions and movement concentrate in the integration core of the PB Belén (the courtyard), which is also used as a passage between adjacent streets. In fact, PB La Quintana may be considered exemplar in offering spatial and programmatic conditions for the emergence of different kinds of social awareness: firstly, through a shallow ring of spaces, it becomes a continuation of urban realm that accesses interactive learning facilities in [a]-type spaces (Figures 8.01 to 8.03). Secondly, through a deeper ring of spaces, it blurs boundaries between formal programmes and makes studies on local issues to be the central activity of this section. It is not intended to say that the spatial (physical) boundaries are 'blurred', but that the (potential) movement of visitors might mix activities from different programmes. In particular, the space dedicated

3 That is, to serve as an educational institution and as an extension of public urban space.

to material on local studies becomes a real 'centre of through-movement', since this space is also the entrance to this section, making it an essential part of the path to all the other programmes. Therefore, in the first ring of spaces, social awareness is constructed by means of visitors *spatially* engaging with the local context; whereas social awareness in the second ring of spaces refers to visitors studying about this same local context (i.e. to be engaging *transpatially* with it).

In both buildings, the networks of intervisibility that happen in the un-programmed areas strengthen the sense that social interaction is not associated with a predefined educational end. It has been shown that patterns of intervisibility affect the perception of curatorial messages in exhibition layouts (Lu & Peponis 2013). Similarly, intervisibility between different user groups in library spaces construct perceptions of collectivity and social participation (Zook & Bafna 2012). In the case of PB La Quintana and PB Belén, social awareness based on co-inhabitation between visitors in un-programmed areas generate an environment where behaviours are only regulated by other visitors. This subtle 'call for participation' in self-regulating practices, I believe, underpins the formation of a community that finds habitual to govern itself. I develop this idea in section 8.2, which follows this one.

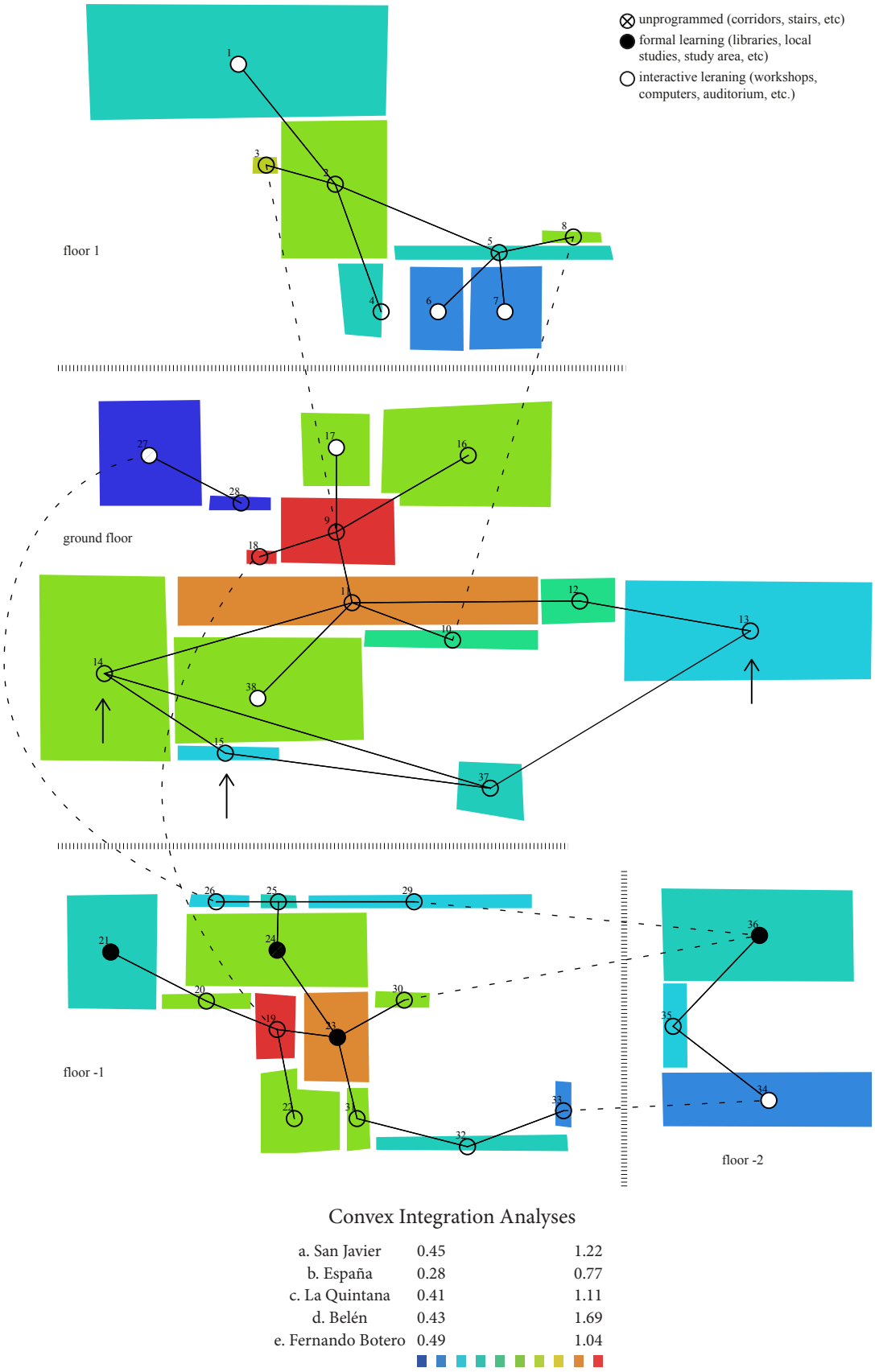


Figure 8.01: PB La Quintana as a system of convex spaces. Hotter colours of convex spaces indicate higher integration values. The system of convex spaces is represented with dots connected by lines. The dots represent whether the convex space is programmed (filled with black or white) or unprogrammed (transparent). The colour of programmed dots represent whether the programme is associated with 'formal learning' (black) or 'interactive learning' (white).

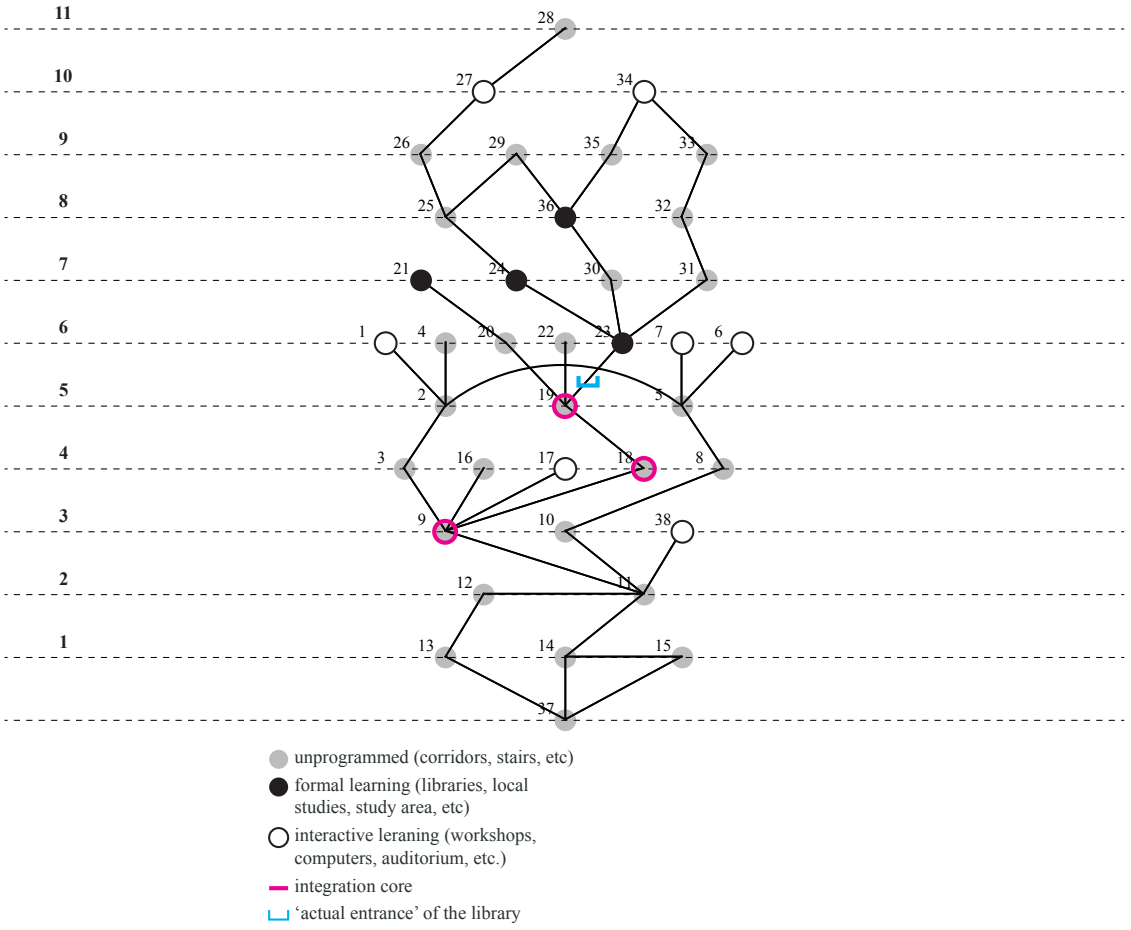


Figure 8.02: Justified graph of PB La Quintana's convex spatial structure. The graph starts from the outside space (space 37). The dots represent whether the convex space is programmed (filled with black or white) or unprogrammed (filled with grey). The colour of programmed dots represent whether the programme is associated with 'formal learning' (black) or 'interactive learning' (white). The integration core is highlighted in magenta. The link that corresponds to the 'actual entrance' of the library is indicated.

Conclusion

I argue that these three types of spatial culture expose a critical reconsideration of the ideas of 'weakly and strongly programmed building' and of 'conservative and generative' environments. Firstly, the analyses of how programmatic descriptions are distributed in the spatial layout – as shown in the pilot study (chapter 4) and in chapter 6 – showed that the asymmetries of space influence the extent to which these descriptions constrain the use of the buildings (in the terms that I have described in section 'Strongly programmed Library-Parks' above). In particular, as in Kensington Central Library (in the pilot study) and in PB España and PB Fernando Botero, *the research exposes how spatial constraints may produce strongly programmed experiences in (transpatially) weakly programmed buildings.*

Figure 8.03: Photos of PB La Quintana. (a) View from the top floor (near the cafe), which shows the density of the neighbouring dwellings. (b) Entrance of the library (the stair from with the person in red is coming). (c) View of the building from the urban passage between adjacent streets. (d) Adult library and reading space, with furniture for both 'concentrated study' (desks) and 'relaxed study' (sofas).

Secondly, the detailed empirical observation of use patterns – analysed through the methods that I developed and described in chapters 4 and 7 – reveals that social practices between visitors and between visitors and staff members have social implications beyond a mere library use. This is particularly shown in the case of PB San Javier. The research describes how social practices may coercively constrain forms of use towards disciplinary experiences in this library. In other words, *the research demonstrates empirically that weakly programmed buildings may serve to discipline users by means of subtle forms of control.*

Thirdly, by means of considering the cultural context of Medellín as an intertwining element of the libraries' architecture, programme and use – which is aspect often omitted from space syntax studies – I exposed how the polarisation of generative/conservative environments have political implications. As I reviewed in chapter 3, Hillier (2005) explains that "space can be used both in a conservative mode to structure and reproduce existing social relations and statuses, usually by using space to segregate, and in a generative mode to create the potential for new

relations by using space to create co-presence through integration". He continues, stating that "the conservative mode leaves things as they are, the generative mode leads to morphogenesis and the appearance of new structures and patterns". He explains that this 'dual process' (as he names it) is at the same time a spatial and social phenomenon:

> *"On the one generative side, there is a public space process which is about bringing people together, and which therefore orders space in such a way as to maximise the reach of spaces and so maximise movement and co-presence. (...) On the more conservative side there is a residential space process, which uses space to restrain and structure movement in the image of a residential culture of some kind, and how it seeks to structure relations between inhabitants and strangers, men and women, near and far kin, and so on."* (Hillier 2005)

The research carried out contributes to these generic ideas by means of considering the political implications of 'conservative' and 'generative' environments in the case of Medellín. In short, the research shows that in PB Belén and PB La Quintana the combination of a multi-permeable circulation system (which maximises movement and co-presence, as Hillier proposes and as I have demonstrated in chapter 7) together with low levels of organisational surveillance is capable of making habitual that socialising groups are not under state-led organisational control. In this sense, these Library-Parks have an immense potential to work as catalysts of bottom-up social change. This is an important finding for the Latin-American context. As I have described in chapters 1 and 5, cities in Latin America are historically characterised by social, political, spatial and economic inequalities. The Library-Parks may have, therefore, a highly positive effect in empowering communities and reducing these inequalities. This topic will be discussed in greater detail in the section that follows.

In conclusion, one can see that the typological distinction constructed here (the three types of spatial cultures) advances our understanding of the potential kinds of interrelation between architecture and the social function of public libraries. Moreover, it proposes alternatives to the polarised categorisation of 'strongly and weakly programmed' buildings.

8.2. The collective value of public libraries in Medellín

As outlined in chapters 1 and 2, the collective value of public libraries is currently being questioned in the light of new technologies of communication (for example the internet and mobile devices) and methods of education (for example the idea of socialisation as a form of learning and the value given to informality in public libraries). In the previous section, I discussed how three of the studied libraries (namely, PB San Javier, PB España and PB Fernando Botero) render co-awareness *useful* for educational and disciplinary means, exposing the role of space in serving as an instrument in this process. I explained that two libraries (namely, PB Belén and PB La Quintana) construct distinct collective cultures that are not *utilitarian* in nature, as their formation is not related to the Library's main programmatic roles. Rather, this second group of buildings may function as a catalyst in producing social awareness that is not *useful* – as it does not *serve for* anything other than being itself. In this section, I aim to advocate the importance of this condition for society.

This section (8.2) also aims at indicating how the study carried out on the Library-Parks clarified some gaps found in knowledge. In particular, it organises two discussions: the first one relates to how the public library status as a representative of collective values together with its weakly programmed condition transforms it into a potential space for practice of community engagement. The second discussion addresses the problem of digital culture in public libraries. It is suggested that the programmatic changes in public libraries do not imply that digital culture should replace traditional media in informing the main purpose of public libraries. Rather, digital culture liberates public libraries to serve as 'stages' in the strengthening of collective values.

The role of space in the 'power of acting in concert'[4]

"Power is what keeps the public realm, the potential space of appearance between acting and speaking men, in existence." (Arendt 1998, p.200)
"The Library-Parks are spaces for freedom." (Fajardo Valderrama 2007)

As reviewed in chapter 1, one of the most important characteristics of the urban renovation of Medellín refers to community participation in the planning decision and funding of projects and programmes. Coupé, Brand and Dávila (2013) remind that mechanisms for participatory planning and budgeting are part of Colombia's constitution since 1994, functioning as a fundamental factor for the promotion and strengthening of local communities. Echeverri and Orsini (2010) explain that local communities participated in all planning phases, from diagnostics to construction. The authors explain that local groups were organised within the neighbourhoods to deal with the participatory process. These groups were linked to the 'Boards of Community Action' ("Juntas de Acción Comunitaria", which existed previously to the urban renovation of 1990s). The authors argue that this link was important to guarantee political representation for these communities in the participatory process. However, as Fiori et al (2000) argue, although participation can be considered the 'cornerstone' of poverty alleviation policies, assessing how it is integrated in a democratic process remains a complex challenge. Indeed, as reviewed in chapter 1, some authors are critical to the ways in which this 'participation' took place in Medellín (e.g. González Vélez & Carrizosa Isaza 2011; Arciniegas 2014), arguing that the model of city that was constructed is tuned more with political and economic interests of the local elite, than to the most recurrent or urgent needs of the majority of the city's population.

This issue is highly relevant for the case of the Library-Parks. This is because one of the most important roles that is expected from these buildings is to strengthen the sense of community and through the public use of their spaces and programmes. These buildings are placed in poor neighbourhoods that suffered from a historical lack of physical and political integration with the city and from negligence of the state to resolve their most urgent needs (such as basic infrastructure, education, health, etc.).

4 The 'power of acting in concert' is a concept defined by Arendt in 'The Human Condition' (1998, p.244 first published in 1958). The power of many men acting in concert is opposed to the power of a single entity (sovereignty) – be it one man or a collective entity of nation/state. The former has the capacity to limit the reality of the latter.

While some projects of the urban upgrading strategy improved these neighbourhoods physical condition (e.g. through urban mobility, basic infrastructure and new public spaces), others focused on integrating and empowering these communities through cultural, educational, political and economic projects (schools, cultural centres and public libraries). The Library-Parks combine both kinds of improvement. As described in detail in chapter 5, the buildings offer new public spaces for the surrounding neighbourhoods. We have seen that they have areas controlled by the library administration (mainly the libraries' interiors) and others that are openly accessed to the public[5] (their outside spaces). In this regard, an interesting aspect observed in the fieldwork refers to the use of the libraries outside spaces even before the official opening times[6]. In addition, the libraries' cultural programmes (e.g. literary festivals, language courses, informatics courses, dance and theatre classes, etc.) help improve education for these communities. As discussed in chapters 1 and 5, these programmes expose the Municipal intention to use knowledge and information as fundamental means to achieve the inclusion of underprivileged communities of Medellín in a "21st century democratic process" (as the literature reviewed describes). I should highlight that education is not only about '*knowing what*' (knowledge contents), but also about '*knowing how*' to communicate and share these contents. In other words, the public use of the buildings and the kinds of co-presence that they produce are part of the educational process. In this sense, Jaramillo's (2012) synthesis is pertinent:

> *"(...) the aspects that make the public library work towards the formation of citizenship education are based on three pillars: first, that the activities in the libraries underpin the conditions for the visitors to appropriate information and knowledge; second, that the visitors are instructed about how to use this information and knowledge in their daily lives; third, that these experiences are then used to improve their community and collective life (...) through co-inhabitation, (...) participation, (...) and autonomy (...)."* (Jaramillo 2012, p.80)

5 In chapter 6, I also indicated that the 'actual entrance' to the libraries, that is, the threshold where there is a control of access, happens in different locations in the libraries (Figures 6.27, 6.29, 6.31, 6.33 and 6.35). In some libraries, such as PB España for example, the 'actual entrance' corresponds to the entrance of the building, in other words, it happens in a shallow link (considering a justified graph of convex system, starting from the outside space, as shown in Figure 6.29). In others, as in PB La Quintana for example (Figure 6.31), the 'actual entrance' is located in a much deeper threshold. This difference indicates that in some cases visitors' access is controlled from the entrance, while in others visitors may use part of the buildings freely before being controlled.

6 This phenomenon was particularly observed in PB La Quintana, which has a semi-covered stage which is fully opened to the public at all times (even when the library is closed). This space was used for group meetings and performance rehearsals.

In other words, the libraries acquire a significant political role through their educational agendas that stimulate appropriation and participation, and through their spaces that allow for such phenomenon to take place as spatial cultures. In this context, the contribution of the present work lies in analysing and discussing the latter, as it is often omitted from studies and official reports and analyses (as reviewed in chapters 1 and 5). One of the aims of the analyses carried out in this study is to assess how the architecture, programme and everyday use of the libraries relate to their agenda of social and political change. More precisely, the study investigated how space and programme affect the formation of collective patterns of use and how this interrelation (between space, programme and use) constructs networks of intervisibility between groups of visitors and staff members. What I aim to argue here is that these aspects (which I measured and analysed) may expose how the libraries' spaces distribute power relations between the community and the state.

A first aspect that analyses have demonstrated is that institutional surveillance is part of the networks of intervisibility in all libraries. In other words, visitors' social awareness includes staff members. As discussed in chapter 2, the presence of staff members in libraries is fundamental for the educational and cultural agendas to take place. Librarians have an important role in facilitating the use of the library, helping visitors in a variety of activities, which range from helping to browse the collections to teaching how to use computers and the internet. However, as they represent and embody the libraries' administrative power, their presence also implies that subtle techniques of control take place.

These observations confirm the ideas discussed in chapter 2 that practices of control are embedded in how space distributes and structures social relationships. Before advancing the argument, I should first remind that libraries need control for a variety of reasons – ranging from security to the organisation and accessibility of knowledge. The issue is not in regards to the need for control, but in relation to how control of social practices is manifested in spatial and programmatic arrangements and in social practices. As we have seen, Bennett's work (1995) is particularly interesting in this regard. He explains how museums evolved from the explicit control of social relations by staff members over visitors, to an environment that encourages visitors to control themselves. Space is a fundamental element for the later process to take place (visitors to control themselves). As discussed, Foucault (Foucault 1975; 1991; 1994)

sees that built form offers a particular quality for the practice of power: its continuity in framing everyday life according to a social order. 'Routine' practice, rather than 'eventual' practice is one of the main factors that differentiate the old legal system of punishment to the current system of discipline and surveillance (Foucault 1991). For Bernstein (2003), space carries messages in a 'non-discursive way': it embeds a particular 'classification', that is, a particular structure of relationships between contents and its users assimilate this structure (2003, p.143). Dovey (2008) suggests that explicit/implicit forms of control are in fact always present in space. He defines 'coercion' as a latent kind of force that operates by preventing subjects from ever forming intentions of resistance. As I have repeatedly emphasised, it is not suggested that librarians become disciplinary or coercive agents, but that in the formation of collectivity based on informal co-presence and interaction – which is the *raison d'être* of these facilities, and which is what the thesis tries to capture – librarians and other staff members' distribution in space affects how behaviours may be institutionalised. In other words, in becoming accustomed to (institutionalised) rituals of interaction, communication and occupation in a library, visitors absorb codes of civic interaction and behaviour.

In this sense, I analysed in chapter 7 how space constrains movement and interaction, how programme defines roles to groups of people, and how visitors interact with staff members and with each other. I will advance this analysis and elaborate how space, programme and spatial practices stimulate empowerment, rather than social control. The authors reviewed in chapter 2 have similar propositions of how space may promote empowerment. Foucault (1994, pp.355–456) sees that only through the convergence of three aspects – political practice, social relations and spatial distribution – a condition of liberty is created[7]. For Bernstein (2003), an educational structure of weak framing and classification can only truly function when everyone involved in the educational process (both educators and pupils) are tuned with the purposes of such educational structure. Dovey (2008) is admittedly[8] vague when referring to spaces that may produce the opposite effect of control. He uses the term 'places of difference' and suggests that these places would encourage

7 Foucault is often criticised for being vague when elaborating the nature of resistance to modes of social control (Lotringer 2007, p.15; Baudrillard 2007, p.48).

8 As Dovey explains, his work focuses on the *constraints* of empowerment and liberation in built form (Dovey 2008 preface xi).

negotiation through the 'power of acting in concert'. I will discuss how the present work advances an important step in exposing empirically how empowerment takes place in space, particularly considering the cases of La Quintana and Belén Library-Parks, and considering the work of Lefebvre, as I briefly reviewed in chapter 2.

These two buildings produce a sense of collectivity that resembles what Zook and Bafna suggested as 'social staging' (Zook & Bafna 2012), in other words both buildings make visitors *see themselves* as a collective. I argue that, in La Quintana and Belén, this condition is created due to the offering of route choices ([d]-type spaces) together with 'public display'. I intend to advance this discussion and propose that, in the case of these libraries, as a result of this 'social staging' visitors are involved in social awareness different than that of a mere *user* of a library.

In PB San Javier, PB España and PB Fernando Botero, visitors form groups (based on intervisibility) only when they participate in programmed classes and/or subject themselves to staff surveillance. Their interactions, as I suggested, are made *useful* for educational and disciplinary purposes. In the case of PB La Quintana and PB Belén, social awareness is not related to 'useful' co-inhabitation: visitors form groups of co-inhabitation that are 'just' the result of random encounters, brought by the fact that these buildings serve as extensions of public urban space.

The 'non utilitarian' condition of these socialising groups does not imply that they are useless: on the contrary, this condition is perhaps what gives them a particular 'political strength'. I will clarify what I mean by 'political strength' referring to the critique brought by Marie Gee (1994) on the application of the word 'user' and referring to Hannah Arendt's 'The Human Condition' (1958[9]). Building on Arendt's work, Gee suggests that the 'user' "can only inhabit a utilitarian world, one in which all things, including other people, exist only for the purposes of the user" (1994, p.122). Through Arendt's theory, Gee outlines the problems of this 'utilitarian world'. First, she gives a brief account of Arendt's theory, showing how, "for Arendt, humans survive, build a world, and live as humans in that world". She continues: "to survive we must labour and consume; to build a world we must work, make and use; to live as humans we must speak and act" (1994, p.118). Thus, the 'utilitarian world' is part of this second human condition, which is related to the idea of the 'maker'. Gee

9 The first edition was published in 1958. The edition I accessed was published in 1998.

emphasises that, in this 'world of the maker', usefulness is the highest value of the world, making 'utility' the most important measurement. However, when everything is measured through the scale of utility (including other humans), then "the inner city, the poor, especially the minority poor, the homeless, the mentally ill [are then seen as] 'useless human resources' [and they] demand resources that the dominant culture believes could be put to 'better use'" (1994, p.115).

Gee's critique is particularly important in the case of public libraries. In fact, Buschman (2005) argues that when economics frames all public spheres, transforming the logic of collective discourse into one of consumption and production, in public libraries there is even a rhetorical shift in considering "patrons" (visitors) as "consumers". Gee formulates that to transcend the logics of utility it is necessary to embrace the third human condition (from Arendt's theory), which is characterised by its political realm:

> *"The political realm arises out of acting together, out of the sharing of words and deeds. Words disclose realities while deeds establish relations, and create new realities. A life without speech and action is no longer human because it is no longer lived among people, she [Arendt] explains. Meaningful stories are only produced by action and speech; we cannot find them in a world determined by means and ends. The world, Arendt tells us, will endure only insomuch as it transcends the sheer utility of objects produced for use. That is, the world must transcend utility in order for it to become meaningful. If utility is established as meaning (if meaning becomes purpose), meaninglessness is generated. When all objects are use objects, meaninglessness grows."* (Gee 1994, p.119)

The power of many men 'acting together'[10], is opposed to the power of a single entity (sovereignty) – be it one man or a collective entity of nation/state (Arendt 1998, p.244). The former is based on conflicting relationships that are in constant negotiation. The latter is based on the consensus of 'a greater good' and therefore it is incapable of creating new realities through negotiation[11]. The former is always evolving and requires each individual taking part in the formation of a collectivity (Arendt 1998, p.200). It is precisely because of this participatory and always-evolving condition that Gee concludes her work suggesting the concept of 'inhabiting

10 Arendt defines it as 'acting in concert' (Arendt 1998, p.244).

11 In fact, Arendt considers that when men are "deprived of seeing and hearing others, of being seen and being heard by them (…) they are all imprisoned in the subjectivity of their own singular experience, which does not cease to be singular if the same experience is multiplied innumerable times. The end of the common world has come when it is seen only under one aspect and is permitted to present itself in only one perspective." (Arendt 1998, p.58).

participants' (in the place of 'user'), as it "comes closer to describing a full person" (1994, p.122).

I suggest that the work carried out in this research contributes to these theories, particularly by addressing how architecture influences power relationships. The current work exposes how the architecture of PB La Quintana and PB Belén contributes to the formation of spatial cultures that do not belong to an utilitarian world (visitors cannot be called 'users' or 'utilitarian'). Rather, these buildings provide public display and enactment for a collection of individual actions that, due to this condition of public appearance[12], have the potential to belong to a community formed by them and bound by acts of negotiation. They have the *potential* to form a community because a community require constant actualisation and negotiation[13]. In fact, this potential community would be empowered *because* it is in constant actualisation and negotiation:

> *"What first undermines and then kills political communities is loss of power and final impotence; and power cannot be stored up and kept in reserve for emergencies, like the instruments of violence, but exists only in its actualisation. Where power is not actualised, it passes away, and history is full of examples that the greatest material riches cannot compensate for this loss. Power is actualised only where word and deed have not parted company, where words are not empty and deeds not brutal, where words are not used to veil intentions but to disclose realities, and deeds are not used to violate and destroy but to establish relations and create new realities." (Arendt 1998, p.200)*

In other words, 'negotiation' overcomes 'consensual greater good' because it is always disclosing a new reality in which its own power is reinstated (Arendt 1998, p.244). In the case of the Library-Parks, the 'consensual grater good' can be represented by the "Citizen Deal for the care and appropriation of the Library-Parks" (Fajardo Valderrama 2007). The 'Deal' states that "[since] these buildings are public, they place collective interests before individual ones" (Fajardo Valderrama 2007). The

12 Arendt calls 'space of appearance' the space of people together in acts not related to an utilitarian or biological world. The 'space of appearance' precedes a formation of a public realm. "The space of appearance comes into being wherever men are together in the manner of speech and action, and therefore predates and precedes all formal constitution of the public realm and the various forms of government, that is, the various forms in which the public realm can be organised." (Arendt 1998, p.199)

13 According to Arendt, the peculiarity of 'spaces of appearance' "(…) is that, unlike the spaces which are the work of our hands, it does not survive the actuality of the movement which brought it into being, but disappears not only with the dispersal of men (…) but with the disappearance or arrest of the activities themselves. Wherever people gather together, it is potentially there, but only potentially, not necessarily and not forever." (Arendt 1998, p.199)

'Deal' works as a model to identify what would be a legitimate 'collective interest', or 'greater good', through means of bureaucratic power[14]. This bureaucratic power is manifested in the space of the buildings (mostly in PB San Javier, PB España and PB Fernando Botero) as disciplinary control to normalize behaviours and as predefined programmes to educate society. PB La Quintana and PB Belén, on the other hand, provide spaces for the emergence of spatial cultures that may be empowered by means of 'negotiation' and 'public display'. In this sense, these libraries materialise Lefebvre's proposition that spatial practice produces "pressure from below [which] (…) confront the state in its role as organiser of space" (1991, p.383). He proposes that "spatial practice is neither determined by an existing system, (…) nor adapted to a system (…)" (ibid, p.391). On the contrary, it diverts homogeneous space producing a theatricalised or dramatized space (ibid.). Similar to performing arts such as acting and dance, the practice of negotiation from living together does not leave behind a product but coincides with the performance itself – which is what I intended to capture. Moreover, this emergent power is only possible because architecture gives structure to otherwise un-connected individual actions, such as formal education of local culture (the educational programmes) and informal practice of local urban culture (the unprogrammed practice negotiation).

14 Arendt argues that bureaucracy is "the last stage of government in the nation-state", where an one-man rule is coordinated by nobody. Bureaucracy utmost effect is to exclude the possibility of individual action towards consensual forms of normalised behaviours (1998, p.40).

The value of the 'publicness' of public libraries

"The power of reading lies not in their ability to gather information, in their ordering and cataloguing capability, but in their gift to interpret, associate and transform their reading." (Manguel 2006, p.91)

"Were it not possible to dialogue with the people before power is taken, because they have no experience with dialogue, neither would it be possible for the people to come to power, for they are equally inexperienced in the use of power. The revolutionary process is dynamic, and it is in this continuing dynamics, in the praxis of the people with the revolutionary leaders, that the people and the leaders will learn both dialogue and the use of power. (This is as obvious as affirming that a person learns to swim in the water, not in a library.)" (Freire 1968)

This research advances the understanding of the spatial aspects of the recent organisational changes in public libraries. In fact, considering the significant influence that architectural arrangement has in shaping the formation of spatial cultures in public libraries (as the work carried out has shown), it is even possible to say that space is the main aspect in the process of changes in the 'traditional' purpose of libraries, as I shall explain further in this section. In other words, this research proposes a shift in the debate on the current organisational transformations in public libraries towards a discussion on its space, rather than in the addition of other programmes (e.g. café, computers, 'maker space', etc.). I argue that future analyses on the use of contemporary public libraries should consider space as a variable, particularly if they aim at understanding how these buildings construct collectivity.

As a result of this shift in focus, public libraries' function cannot be reduced to their set of programmes: rather, the discussion on their spaces promotes public libraries as places that may be generative of cultures that surpass the limits established by their programmes. In this sense, this research agrees with Imholz (2008) when she suggests that "the 21st century library will be a place to access people, not information" since "a social experience is what differentiates the library from sitting at home in front of the computer screen" (2008). This research shows that, considering the Library-Parks of Medellín, 'accessing people' means 'exchanging information', but information of a different kind. One may call this other kind 'social information', as it is the result of interaction and social awareness. At this point, it is interesting to return to the work of Forgan (1986) and Bennett (1995) on museums. As I have discussed, their work shows that museums embed an epistemology of

science considering how they organise objects and information in space. These authors also argue that museums embed 'taxonomies of social relations' in regards to how social groups access information and interact each other in space. The study carried out proposed a similar argument, outlining three different 'taxonomies of social relations' (to use Bennett's words) in public libraries. Firstly, when interaction and social awareness are strongly defined by programmatic roles (as seen in the case of 'strongly programmed libraries', such as PB España and PB Fernando Botero), libraries educate visitors according to institutional goals. Secondly, when interaction and social awareness are strongly supervised by staff members through disciplinary tactics (as seen in the case of 'strongly disciplined libraries', such as PB San Javier), libraries makes visitors politically docile. Finally, when interaction and social awareness are shared in between visitors without programmatic determinism and strong supervision (through the offering of movement choice together with public display of unprogrammed activities, as seen in PB La Quintana and PB Belén), libraries construct 'highly self-regulated' spatial cultures (as I have described). This last kind of spatial culture promotes a social experience that encourages the exercise of participation and collective engagement. Considering the case of PB La Quintana for example, individuals were capable to use the condition of public display generated by the configuration of spaces (as I have described) to be seen by others without the intervention of an institutional organisation. For instance, this was seen when a dancing group used the interior of the library and could be seen by others, but was not organised or supervised by the library administration. In other words, this group was not placed under the categories of "dance practice", or "local culture workshop", or "exercises for the senior citizens". It was not organised by a timetable of coherent events either, with a time to begin and finish determined by the library administration. Rather, the group was using the space without administrative categories. In short, their interactions with other visitors (by means of co-awareness from co-presence) was not categorised and they were free to negotiate their position in the 'taxonomy of social relations'.

As reviewed in chapter 2, the literature from librarianship field indicates that the internet and the value given to informal interactions were the main factors that influenced programmatic changes in public libraries (Sears & Crandall 2010; Verheul 2010; Hapel 2012). However, although these factors can be identified as the reasons

for change, they should not be seen as the replacements of 'traditional media' (that is, books) and become the main activity of public libraries. I argue that the programmatic change brought by these factors emphasised the value of public libraries as extensions of public urban space. In other words, their 'publicness' is, I believe, the main value of public libraries. This is due to the fact that public libraries do not only function as 'political symbols'[15] (Shoham & Yablonka 2008), but most importantly (and as I have demonstrated), they may work as 'political stages'. Therefore, if public libraries aim at 'updating' themselves, they should concentrate their efforts in offering spaces for the exercise of participation and collective engagement (as I described so far), rather than embracing digital culture as a substitute of traditional media. This emphasis does not exclude digital culture: it places this culture not as the main goal of public libraries, but as one of the means of achieving its main goals. The work carried out showed that the Library-Parks that limited themselves to work as providers of digital culture became places where people mainly visit to access computers and attended classes – and nothing else[16]. Of course, one should recognise the importance of the educational role of these facilities, as education is fundamental to promote both collective and individual lives, impacting in politics, economy and culture. The intention here is not to underemphasise this role, but to understand that education is not only about the formal learning of established knowledge, but also about the informal experience with people and spaces that we share in collective life. In fact, as Paulo Freire says, "reading the world precedes reading the word" (Freire 1982), in other words one may even consider that the knowledge acquired from living together is a pre-condition for the construction of meaning of formal knowledge. I believe that these Library-Parks that are mainly being used as a computer school and centre of classes missed therefore an immense opportunity in serving as 'political stages', particularly considering the underprivileged conditions of the populations that surround them.

Nevertheless, digital culture can be used as means to attract visitors to participate in 'political stages'. PB Belén may serve as an example of this strategy: the areas programmed for educational purposes (computer rooms, exhibition spaces, etc.) are located in [a]-type spaces that are linked to the [d] or [c]-type spaces of the

15 (as, for example, the Project of Library-Parks invest in the use of architecture as an image)

16 During fieldwork, this fact was highlighted by one of the visitors of PB Fernando Botero, who criticised the building for being "just a big and fancy computer school".

courtyard. This multi-permeable courtyard combines both internal movement and urban movement. This fact implies that the full educational function of this library is realised through its capacity to work as a public space, since movement from one educational programme to another necessarily crosses the spaces that are mostly used as extension of public space. In addition, this overlap of movement and occupation produces emergent spatial cultures that are highly self-organised. This finding greatly contributes to the theoretical proposition brought by Hillier (1996, pp.255–256) that systems made of a combination of [a] and [d]-types produce "an emergent form of spatial use" due to "the overlap of movement in situations where movement is functionally neutralised". In PB Belén, the networks of intervisibility that happen in the 'functionally neutralised' (and unprogrammed) areas strengthen the sense that social interaction is not associated with a predefined educational end, but with the everyday practice of interaction, participation and negotiation. These 'functionally neutralised' and unprogrammed spatial cultures underpin the formation of communities that find habitual to govern themselves. As said previously, the practice of negotiation from living together is similar to performing arts such as acting and dance: it does not leave behind a product but coincides with the performance itself, which is what I intended to capture. Indeed, the main contribution of this work in this regard lies in demonstrating empirically and analytically the impact of this '[a]-[d] system' in the formation of collective values in the case of public libraries.

8.4. Limitations and future research

Having explained the contributions, I shall acknowledge that there are several limitations in this study. The major ones stem from the method and the extent of data collection. The study constructs an aggregate picture of the use of the libraries using only a small sample of days for each Library-Park, particularly considering the fact that these buildings are opened almost every day of the year. In this sense, the research cannot capture nuances in the variation of time in the studied buildings (e.g. variations of day/night, weekday/weekend, summer/winter, etc.). An attempt to read the data gathered in order to address these problems needs to assess how much the observed sample can be representative of these variations.

A second limitation is also related to the extension of data collection: the present study only looks at five Library-Parks. One of the findings of this research is precisely that the functioning of buildings accessed publicly cannot be analysed without supporting empirical evidence of how the building is used. Therefore, the present study cannot generalise its findings towards assessing the other Library-Parks that were not investigated. Nevertheless, the three types that this thesis presents – 'strongly programmed', 'strongly disciplined' and 'highly self-regulated' – may be used as hypotheses for next studies.

Thereby, far from reducing the importance of this work, these limitations highlight the extension of the gap in the knowledge on the functioning of these buildings. Here I aimed at setting the methodological framework for visualising and analysing the formation of spatial cultures, and investigating their relation to architectural features. I do not intend with this work to criticise the libraries for changing their original role. Instead, I aim at understanding how this role relates to associations and formations of social interaction in the studied buildings. The understanding I try to construct stresses the difference between abstract definitions of what architecture means as a social instrument of representation (since the Project has invested on architecture as image) and as an actual field of social interaction (which is what I try to measure). The ways in which the Project manifests its intentions through the symbolic use of architecture does not always guarantee what will be realised in everyday practice. It is argued that to empower space and communities

to be generative rather than conservative is less about prescribing the use of space (and expressing the symbolic power of buildings) and more about creating the socio-spatial conditions that allow unpredictability to flourish. In this sense, this research indicates that environments such as La Quintana and Belén Library-Parks support the formation of informal interaction, which is crucial to self-organised communities. In fact, these 'highly self-regulated' buildings are perhaps capable of being central in constructing social awareness that surpasses the limits established by the Project of Library Parks – both in spatial and transpatial dimensions.

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